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THEISM AND RECENT PHILOSOPHICAL SPECULATION [1]

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THE recent speculation which I have in view is that which finds its inspiration in the great development of scientific discovery and scientific thought in our day. It would be impossible to range over the whole field. Moreover, the efforts which have been made to frame a comprehensive scheme of thought on the foundation supplied by science are those which are truly characteristic of our time. In recent years, science has been passing beyond the experimental stage, and also beyond the limits which, in former times, made it departmental. The great conception of Evolution, and the intimate linking up of astronomy with chemistry and physics, and of chemistry and physics with physiology and biology, have quite altered our outlook on the universe. The mind of to-day passes from space-time to the electron, and from the electron to the structure of the cell, and from the cell to the living organism, with hardly a jolt. Not that the problems which mark the passage from stage to stage in this series have been solved, far from it; but that the different stages have so much the appearance of closing up into one continuous process that we seem to be approaching a view which will regard the whole as one unbroken development. No wonder that philosophic minds, among students and dreamers speculating on the mystery of the Universe, begin to think that some account of it, based on assured results of science, is becoming possible.

These philosophers are the legitimate successors of two great thinkers of the middle of the nineteenth century, Herbert Spencer in England and Hermann Lotze in Germany. Looking back through

[1] A Lecture delivered to the British Institute of Philosophy at University College, Gower Street, London, on Tuesday, February 23, 1932.

half a century, I recall the enthusiasm with which I read the works of those two great minds. To Herbert Spencer the world owed the conception of universal evolution. He presented that idea in a way which captivated the imagination and raised high hopes. In religion he was an agnostic. Hermann Lotze probed far more deeply into the foundations of knowledge. In religion, he was a convinced theist. These thinkers started from a mechanistic conception of physical process. In our time this conception has been abandoned. How completely will be realized by those who have read Sir Arthur Eddington's statement on the subject in a supplement to an issue of *Nature* last month. The change is a veritable revolution.

The writings I have in view on the present occasion may be classed with the works of Spencer and Lotze, but are relevant to the present position of Science. I may mention M. Bergson in his *Creative Evolution,* Dr. Alexander in his great work, *Space, Time and Deity,* Professor Lloyd Morgan in *Emergent Evolution,* and the works of Professor Whitehead and Mr. Bertrand Russell. One writer, however, I single out for special examination, because I find his line of thought very valuable and suggestive, and not so provocative of subtle and difficult problems as those I have mentioned. I refer to General Smuts in his *Holism and Evolution.* Here we have science and philosophical thought brought into very close association, and the scheme of thought provides exactly the outline which will help me to place before you the principles I desire to emphasize. The other writers I have mentioned will not be altogether forgotten. General Smuts develops a doctrine of progress in the Universe as a movement from simpler to more complex wholes. The stuff of the world is not matter, but events in space-time. The event takes up the material into itself and gives a richer content. And "space-time finds its natural completion in organic evolution." "Life is not an entity, physical or other. It is a type of organization: it is a specific principle of central or self organization." It is a whole of higher kind; and a whole is not a sum of parts, or constituted by its parts. Its nature lies in its constitution more than in its parts. The part in the whole is no longer the same as the part in isolation. The interesting point is that while this concept of the whole applies to life, it is, according to recent physics, no less applicable to the ultimate physical units. Thus the electron within the atom is no longer a distinct electron."[1] Passing from life to mind, General Smuts finds that "mind, even more than life, is a principle of whole-making."[2] In Personality, he finds the highest point which the principle of Holism has reached. "Personality is the supreme embodiment of Holism, both in its individual and its universal tendencies."[3]

[1] *The Scientific World-Picture of To-day,* p. 10.
[2] *Op. cit.,* p. 13. [3] *Holism and Evolution,* p. 272.

I confess that I find General Smuts' doctrine of Holism profoundly interesting and valuable. Indeed, I think it is one of the best and soundest of all the ladders that our evolutionary philosophers have been setting up in the endeavour to reach the philosopher's heaven, the solution of the supreme problem. But General Smuts does not pretend to have solved that problem. He frankly declares that, in the end, his doctrine makes the mystery deeper than ever. Like Sir James Jeans, he leaves us confronted with the "Mysterious Universe."

Now it seems to me that all such speculations, including those of M. Bergson, Professor Lloyd Morgan, and others, however interesting they may be, and however much of truth they may express, are really only descriptions of the process. The holistic description is a very true and valuable description, and points, in my judgment, if I may venture to say so, to a great truth which is at present beyond its reach. But no reason appears to explain why the course of evolution should rise from stage to stage in ever increasing concreteness until personality and moral order emerge. General Smuts rightly states that the essence of a whole, in the conception of it which he sets forth, is that "it is always transcendent to its parts," and adds that its "character cannot be inferred from the characters of its parts." Of this latter statement, a doubt may reasonably be expressed. Yet it is on it that he bases the conclusion that to reason from the fact of evolution to "a supra-mundane Mind or Personality" is illegitimate, as "it ignores this fact." Such a supra-mundane "Personality" would, he declares, be "creatively new and unlike the wholes which we know and which would constitute its parts." He fortifies this argument by an appeal to Kant. "There is universal agreement," he writes, "with the well-known argument of Kant, that from the facts of Nature no inference to God is justified."

This brings the problem to a point. I do not think that there is universal agreement about Kant's argument. Hegel, for one, did not accept it, and his criticism of Kant's philosophy has never, in my opinion, been overthrown. I do not, however, fall back on the authority of Hegel, or ask you to accept any authority. I put before you a brief statement of the reason which makes me believe that Kant's argument is not conclusive. Kant makes a sharp distinction between the speculative and the practical reason. The former can know nothing of ultimate truths, but it requires certain regulative principles, God, Freedom, and Immortality. These, which are merely regulative in the speculative sphere, become constitutive in the practical sphere, and form the basis of our moral life.

The result is that we find ourselves at the end confronted by two warring systems. The division made at the beginning runs right through and shows itself at the end in a hopeless antithesis. It is all

very well to say that God, Freedom, and Immortality must be assumed as regulative principles of the speculative reason. Most people to-day will say, I do not see the necessity. But Kant says they are constitutive in the moral life. Here it will be said by many to-day, If reason does not justify them, I must try to live without them. Kant, in fact, tries to found morality and religion on a fundamental scepticism. It cannot be done.

We must go behind Kant. The speculative and the practical cannot be separated. To try to separate them is to endeavour to tear intelligence and will asunder. Intelligence is the speculative, Will is the practical. There is no such thing as an act of intelligence which is not also an act of will. Attention which is involved in all knowledge and in all thought is essentially conative, that is, of the nature of will. Will involves knowledge, because there must be some realization of an aim before the effort of will is made.

In the personal experience of man, which General Smuts recognizes as the highest point of the holistic ascent, all the elements which Kant tore asunder and examined separately are united in a single activity. Now General Smuts tells us that it is of the essence of a whole that it always transcends its parts. I agree. But there is nothing to show that the transcendence is of such a nature that the lower has no share in the qualities and characters of the higher. The evidence seems to me to be all the other way. The living organism takes up into itself, and uses as elements in the economy of its life, the chemical elements and the physical processes which belong to the material world. In fact, all these elements and processes assume a more highly organized character when drawn up into the service of the organism. So again, the human organism which is the instrument of personality involves all the material and vital processes of the lower orders. In this latter case the relationship becomes very close. The dog can look up into his master's face and enter, with some degree of sympathy and understanding, as we may well call them, into the feelings, and even the purposes, of his master. Yet we do not claim the high prerogative of personality for the dog, although indeed he seems to get very near it sometimes.

Now it seems to me that we, human beings, when we use to the full the powers which belong to our personality, can enter, to a real degree, into the Mind and Will, as I venture to call them provisionally, of the supra-mundane Power, which must surely exist. Here is my reason. We live in an age when the mind of man has been winning victory after victory in the understanding of the processes of nature. The grasp which we now possess of the universal system of things is really astounding. The books which astronomers have been writing of late years, the works of Sir James Jeans and Sir Arthur Eddington, have given us a vision of the Universe which is a revela-

tion of its greatness and wonder that would have seemed impossible a few years ago. That distant suns invisible to the eye, or barely visible, even in high powered telescopes, can be measured, weighed, and classified in relation to the systems to which they belong; that vast nebulæ, systems in the making, can be explored and measured; that new and astonishing conceptions of the nature of space and time, and of the Universe itself, can emerge from the application of mathematical methods; that the atom can be explored and the incalculable electron discovered; that the subtle chemistry of the living organism in its control of vital processes can be defined—these are but a few instances out of a multitude of the great achievements of the human mind which have surprised and adorned our age.

Sir James Jeans, in his delightful book, *The Mysterious Universe*, tells us that "from the intrinsic evidence of His creation, the Great Architect of the Universe now begins to appear as a pure mathematician."[1] Developing this further, he argues that the "terrestrial pure mathematician does not concern himself with material substance, but with pure thought. His creations are not only created by thought, but consist of thought, just as the creations of the engineer consist of engines. And the concepts which now prove to be fundamental to our understanding of nature" seem "to be structures of pure thought, incapable of realization in any sense which would properly be described as material."[2] After discussing the nature of substance when regarded from the point of view of modern physics, he continues: "To-day there is a wide measure of agreement, which, on the physical side of science, approaches almost to unanimity, that the stream of knowledge is heading towards a non-mechanical reality; the universe begins to look more like a great thought than like a great machine. Mind no longer appears as an accidental intruder into the realm of matter: we are beginning to suspect that we ought rather to hail it as the creator and governor of the realm of matter—not, of course, our individual minds, but the mind in which the atoms out of which our individual minds have grown, exist as thoughts." "We discover that the Universe shows evidence of a designing or controlling power that has something in common with our own individual minds—not," he goes on, "so far as we have discovered, emotion, morality, or æsthetic appreciation, but the tendency to think in the way which, for want of a better word, we describe as mathematical." "Those inert atoms in the primæval slime which first began to foreshadow the attributes of life were putting themselves more, not less, in accord with the fundamental nature of the Universe."[3]

All this is in disagreement with the dictum of General Smuts that "from the facts of Evolution no inference to a transcendent Mind is

[1] *Op. cit.*, p. 134. [2] Pp. 135, 136. [3] Pp. 148, 149.

possible."[1] Sir J. Jeans believes that the new revelation into the structure of the universe by the use of mathematical methods points to a Creator who is a pure mathematician and whose creations are pure thought. But I venture to hold that we can get beyond that very limited view of the nature of the Supreme Power when we consider the nature of thought.

There is no such thing as pure thought, except as an abstraction from the fullness of our experience. As we saw, when considering the philosophy of Kant, that great thinker was led into a system which is at heart a contradiction, because he made a sharp division between the speculative and the practical, between intelligence and will. Intelligence and will cannot, as we saw, be separated. In all our mental activities there must be some aim. When the mathematician sets out to solve a problem, no matter how abstract that problem may be, he must concentrate his faculties upon it by an act of will. And I believe I am right in saying that psychology has been showing that will, or perhaps I should say conation, possesses an extraordinary pervasive and persistent efficacy in all our mental processes. It has been shown that, in the form of "attention," it carries us through our mental tasks, calling us back to them in spite of all distractions. As "interest" it provides an unfailing stimulus to all our powers. As "character" it directs us in every activity. For what is character but habitual will (ἕξις προαιρετική).

And here I gladly invoke the authority of Dr. Alexander. Dealing with this very subject, in the work to which I have already referred, he points out that mind is made up of conations. He writes,"there is nothing in the mind (with a possible reservation to be made on behalf of feeling) but acts." "It includes passive acts of sense as well as activities of volition." "Every mental act is a conation and is nothing else, except for the possible addition of feeling. It is equally legitimate to use the term employed by Mr. Ward and to identify consciousness with attention. The word *conation* has the advantage, for it carries with it the meaning of practical action, and all mental action is primarily practical. Now cognition," he continues, "is not a separate kind of action from conation. It is not even a separate element in a mental act which can be distinguished from a conative element in the act. Cognition is nothing but the conation itself in so far as it is compresent with and refers to an object."

When conation resolves itself into the fullness of volition, and becomes an act of will, it is dominant in experience. All our conscious life is conative. *Intelligence is never without purpose.*

Now surely it is clear that the whole course of scientific discovery, the whole range of the sciences and their amazing disclosures

[1] *Op. cit.*, p. 350.

of the order of creation, is a revelation of an intelligible order pervading the universe throughout its history. Every onward step that science takes adds a further proof that the universe is not unintelligible.

But if the universe has, through the labours of science, become so far intelligible, there is surely good ground for supposing that the Power which works in it is intelligent. He is, we are told, a pure mathematician, I am quite sure that all that we call mathematics are but clumsy ways of getting at things that to Him are perfectly obvious. But we cannot, I think, limit His intelligence to pure mathematics; because, though mathematics may provide a measure for the bare framework of creation, it can certainly not fill in the amazingly rich content which that framework includes.

I think we can get on a bit if we turn back on our consideration of the place which will occupies in the economy of mind. There is no such thing as intelligence without will. There is no mental activity, in the full sense of the term, which is without aim, without purpose. Even attention, which is essential to all true mental activity, is of the nature of will, and has an aim, a purpose.

So far then as we are able to trace intelligence in the universe, as it is revealed by science, we are bound to find purpose there also. But what is that purpose? Perhaps it is something as far beyond our grasp as is the total constitution of the Universe. On the whole, we must, I think, conclude that it is. But it does not follow that because we cannot know all about the purpose of the Universe, therefore we can know nothing. We might just as well say that because astronomy has not solved every problem connected with the stars that its wonderful discoveries are to go for nothing.

If we wish to attempt to answer the question, What is the purpose of the Supreme Power in Creation? an obvious way is to trace the course of Creation so far as we know it. And here science is able to give us more help than might have been anticipated. For, in these modern days, the various sciences have extended their borders so widely that they have begun to touch one another, and so provide a continuous story of the order of Creation. Astronomy, Physics, Chemistry, Geology, Biology, Archæology, and History form a connected series, giving us an account of the process by which our world, as we know it, came to be what it is.

The question arises, Is there any unity of aim, any plan, revealed in this great story? Is it a mere chaos, a patch-work made up of unrelated items; or is there a direction indicated? It is surely evident that as we trace the succession of events throughout the whole series, we find, first, the formation of nebulæ, then of suns, then our solar system makes its appearance, perhaps one of many such systems, perhaps unique. As to this last question, our ignorance is

complete; all we can say is that we know of none other. Nor do we know of any other world inhabited like ours. Mars, most like to our Earth, is not, it now seems, fit for habitation by living creatures of high organization.

Then, when we consider the history of our world, we find that, after ages of purely physical development, it became the home of living beings, divided into two great families, plants and animals; and as the former developed in perfection and beauty, the latter advanced from microscopic specks of animated jelly, with the power of locomotion and self-direction, through infinitely various forms, until creatures of higher type appeared, possessing various organs of sense, and powers of apprehension and association, and finally man came into being, with his faculty of thought and discernment of values which together revealed a whole world of intellectual and æsthetic attainment.

If we believe that purpose pervades the cosmic process, we must surely find it here. And it is indeed worthy of note that the course of this great progress has led to the emergence of thinking beings who have the power of turning back, in reflection, on the vast creative process by which they were brought into existence, and, by the use of their mental powers, to explore, with most wonderful success, the various elements and phases of that process. This can surely be explained only by the supposition that the mental powers which man possesses are of the same sort as the directing power which has been at work throughout. There must be, in truth, some degree of kinship between man as a thinking and willing being and the Supreme Power to which he owes his existence. The spiritual nature of man is the one certain clue to the character of the Supramundane Spirit; for He whose nature is defined most truly in terms of intelligence and purpose can be thought of in no other way.

There are certainly difficulties in the way of the acceptance of this conclusion. One which is much felt at the present time is the littleness of man as compared with the vastness of the Universe. It is true that in our day science does not teach us to think of the Universe as infinite in space and time. But the exploration of the heavens by modern methods has so increased our knowledge of its greatness that it seems even more overwhelming than in former times. When we are told that the number of the stars is "almost certainly greater than 100,000 millions," each star being a sun; that "our Earth is a tiny appendage to one, and a rather inconspicuous one, of this vast multitude of stars;" that "it is less—very much less—than the dot of an 'i' in a library of half a million volumes; it ought rather to be compared to a microscopic speck of dust imprisoned between two pages. And this is the speck of dust whose inhabitants thought, until about three hundred years ago, that it

was the centre of the Universe, and that all other stars circled round it—had, in fact, been created for no other purpose than to circle round it, and shed a bit of light on it now and then in the absence of the sun and moon."[1] Such reflections as these are certainly overwhelming. But, as Pascal said when the modern scientific view of the Universe was beginning to be realized, "Man is the feeblest reed in existence, but he is a reed that thinks—a noxious vapour, a drop of water is enough to cause his death. But though the Universe were to destroy him, man would be more noble than his destroyer, for he would know that he was dying, while the Universe would know nothing of its own achievement."

Our new knowledge has really added to the strength of Pascal's argument, for what are all these glowing suns in space? They are only so much hot gas. To their creator or to the contemplating mind they are indeed glorious, sublime; but in themselves, apart from the intelligible system to which they belong, they are of no account. And it is worthy of consideration that mere number of things, whether big or little, relatively to our dimensions, need cause us no feeling of humiliation. There are more atoms in the human body than there are stars in space. And, as Sir Arthur Eddington has pointed out, man occupies a position midway between the star and the atom which enables him to study both. And we might also add, it is this midway position which gives to man the enjoyment of the splendour of the sky on the one hand, and of the beauty of the earth on the other.

We must, therefore, refuse to be intimidated when the vast numbers which express astronomical calculations are hurled at our heads.

As Dr. Wildon Carr points out, there is "no unit of magnitude by reference to which anything can be declared great or small."[2]

A much more serious difficulty arises from a consideration of certain of our circumstances here on earth. Some of the elements and conditions which the process of creation has brought forth seem to point to an agency which, if it be in any sense intelligent or purposive, seems altogether remote from our understanding or sympathy.

Let me quote some familiar lines which express this with terrible intensity:—

> Tiger, tiger, burning bright
> In the forests of the night,
> What immortal hand or eye
> Could frame thy fearful symmetry?

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[1] Jeans, *The Stars in their Courses*, p. 117.
[2] *The Scientific Approach to Philosophy*, p. 78.

When the stars threw down their spears,
And watered heaven with their tears,
Did He smile His work to see?
Did He Who made the lamb, make thee?

Here is a tremendous question. But it is not altogether unanswerable. Animate creation consists of two parallel series, vegetable and animal. In both it will be found, when the process of becoming is traced, that there is a progress, not merely from lowly to more highly organized forms, but also in the realization of the higher values. There is an evident growth in the attainment of psychical powers and of physical beauty among animals. The monstrous saurians, who were the dominant inhabitants of the world some millions of years ago, were clearly at a low level of psychic attainment and had but little physical beauty. The tiger is just as fierce and ruthless in the pursuit of his prey, but he has the attribute of splendid beauty.

When we turn to the development of plant-life, we find a parallel advance, but a somewhat different result. Readers of Dr. Seward's delightful book, recently published, *Plant Life Through the Ages*, cannot fail to be impressed by the astonishing difference between the early vegetable forms and the plants of to-day. The earliest plants of which we possess some real knowledge, the plants of the Devonian period, were almost formless. They certainly possessed no beauty. Some had neither roots nor leaves, and these were among the more developed. Some others had small over-lapping leaves like those of a *Lycopodium*. When the carboniferous period is reached, there appear the weird skeleton-like *Lepidodendrons*, and other forms which show indeed a great advance, but are very far from the glory and beauty of the vegetable world as we now know it. Quite late in time, after slow progress through vast geological periods, covering perhaps hundreds of millions of years, appeared the flowering plants, and before their glorious advance the more primitive races of the vegetable world retreated, and finally almost disappeared, leaving some poor relatives such as the club-mosses and the horse-tails. Now, over all the world are to be seen the beautiful flower- and seed-bearing plants, from the splendid oaks and beeches of our forests, through all the delightful forms of the rose and the lily families and multitudes more, down to the gem-like alpines which adorn the crests of our higher mountains.

In all these the leaf is the characteristic element, and it is worthy of consideration that, while there are countless millions of leaves in the world, all differing in form and often varying in colour, they are all beautiful. No one ever saw an ugly leaf. Such an immense history as this, with its great conclusion, seems to me to point to a quality in the Creative Power—a purpose to produce the beautiful, and

therefore a capacity to enjoy it. It also points to an æsthetic faculty in ourselves which enables us to appreciate all this beauty, and therefore it reveals our kinship with Him.

In the vegetable world we discern a progress which seems to advance by regular stages and uninterrupted order, from crude beginnings to a perfected system, marked throughout by the attribute of beauty. The animal world is very different. It contains the ugly as well as the beautiful, the hideous crocodile as well as the bird of paradise. And when we turn from the æsthetic qualities to what may be termed in a provisional way the moral, *i.e.* the qualities which belong to living activities, we find the animal world full of the infliction of pain, with much of greed and of terror. Here is the realm of which the tiger may be taken as the significant figure. He is not ugly like the crocodile, but, with all his splendid beauty, he is the very symbol of ruthless greed and power.

What can be said of this? Recent observation of the most exact kind has shown that, very early in the animal series, there appears a quality of spontaneity which even, in very minute and primitive forms of life, seems almost like conduct. Professor Jennings, in his investigations into the *amœbæ*, has found that these microscopic specks of animated jelly, in the pursuit of their prey, show a power of quick adaptation of their movements to changing circumstances which cannot be explained as mere physical reactions. Examination of the life-history of insects reveals far more wonderful activities of the same kind. As we rise in the scale of animate forms we come to conduct which cannot be explained by anything but some degree of intelligence of the kind that we know in ourselves. It would seem that, with the power of locomotion, there came also some degree of self-adaptation to circumstances. And this power reached its highest point in human will, the power of conscious self-determination.

The interpretation of the whole history is that animal creatures, on account of their special gifts, are not merely the outcome of forces not their own; they have all to take a share in the making of themselves and of the race to which they belong. From the highest to the lowest they possess a creative faculty. Therefore they sometimes go wrong and sometimes go right. Therefore they are sometimes kind, as when moved by the maternal instinct; and sometimes cruel and utterly selfish, like the tiger with his prey. Like the gorilla, the animal may be a good husband and father, but a terror to the unwanted intruder. And when man emerges on the terrestrial scene there come goodness and evil, love and hatred, kindness and cruelty, and all that mixture of qualities which mark the life of humanity.

What conclusion is to be drawn? It is this, the Creative Power delights in beauty: we see that in the history of the vegetable world.

Its uniform and amazing beauty cannot be accidental. Also He can make the vegetable world beautiful without any help from us, and He did it. But He also delights in goodness, and here comes in the difficulty. Goodness cannot be produced in that way. It must come through the willing agency of moral beings. But moral beings cannot be produced by a mere *fiat*. Goodness must come, if it come at all, through the long discipline of the ages; the living creatures must rise, and largely by the use of their own powers, from lowly beginnings, through struggle and painful effort, through success and disappointment, to ever higher attainment.

Thus the guiding purpose of the whole appears. Yes, God certainly is. And He is personal, because there is universal purpose. But when we have said this, we have not said everything. The mysteries that remain seem to point to the conclusion that personality, as we possess it, is not a sufficient account of His nature. And it is worthy of your attention that this is the very essential and innermost heart of Christian Theism.

I wish I had time to consider Dr. Alexander's discussion of the nature of Deity in his great work, *Space, Time, and Deity*. He thinks there may be finite deities of whom we know nothing, but that Infinite Deity does not exist. Infinite Deity is the whole universe with a *nisus* to Deity, and this is the God of the religious consciousness. This doctrine seems to me to be the consequence of his belief that in the beginning there could be nothing but space-time. But surely there was more. There was space-time so circumstanced and directed that it was bound, with the lapse of ages, to bring forth the conditions out of which arose a race of beings capable of high values, and of striving ever onward to values higher still, in their age-long struggle upwards towards God. *There* is the secret of the *Religious Consciousness*. And we can see that only through struggle could the great end be won. The *nisus* of which Dr. Alexander speaks was there from the beginning, and throughout the whole process.

It is worth recalling here that the ordered Universe with which we are confronted is, through the constant disorganization of energy, most certainly moving to an end. Its limitation in space-time has also been shown to result from the doctrine of relativity. Does that overwhelm us? Not at all. For it is clear that, if this be so, the Universe had a beginning. Its present order is not the outcome of some accidental collocation in an eternal whirl of atoms. There was an impulse to start it, and a *nisus* impressed upon it. How better can such a belief be expressed than in the great words with which the Book of Genesis opens: "*In the beginning God.*"

OXFORD MORALISTS

IAN GALLIE

I THINK it will be generally admitted that if Oxford philosophers have any claim to have added in recent years to the store of our philosophical ideas, it lies in their published works on the theory of conduct. I don't think it can be claimed that, even in this sphere, they have given us many new and illuminating positive truths. After reading Mr. Ross, Professor Prichard, and Mr. Joseph, we are left, I think, with the impression that the whole subject is much more intricate and puzzling than we should have thought possible. I intend in this paper to try and discover what is true in the theories of these three moralists on one of the most difficult and puzzling of ethical problems, viz., "What Renders a Right Act Right?" Professor Prichard and Mr. Ross, in the main, stand together; it is regrettable that Professor Prichard's published work is so very meagre. And if in quoting from his article in *Mind*, 1912, on "Does Moral Philosophy Rest on a Mistake," I am doing him an injustice in attributing to him any views which he no longer holds, I am sorry; but modesty in publishing has its penalties, and anyhow, the article is too guilty an offender to get off free, for its annoying subtleties started the whole trouble, and led indirectly to *Some Problems in Ethics* and the *Right and the Good.*

Professor Prichard's Article.—And first I must point out what seems to me to be a fundamental fallacy underlying the main contention of Professor Prichard in that article, although it is not strictly relevant to the main problem with which I intend to deal here. Most Moral Philosophy, Professor Prichard contends, rests on a mistake, for it is the attempt to answer an illegitimate question. How it happens is this: We come, he says, in the course of our lives to doubt that our hitherto unquestioning moral convictions are true; so we ask for a Moral Philosophy to prove to us that they are true. But this it cannot do, for if a cognition is an instance of self-evident intuition, no proof can be given that it is so. It is as though a man came to doubt that $4 \times 7 = 28$, which he could only do, Professor Prichard says, by forgetting, for the time being, that he knew it, and thinking he only believed it, and then asked for a Theory of Knowledge to prove to him that his original cognition was not mistaken. Now, even if it were true (which I could not admit) that our unquestioning moral convictions are instances of knowledge, I think that on two points his view is completely mistaken.

I. It identifies Moral Philosophy with the Theory of Obligation, and this clearly, if anything, is illegitimate.

II. Even the Theory of Obligation cannot seriously be regarded as an attempt to tell us whether our actual moral judgments are true or not. It is, primarily, I submit, a process of reflection on the meaning and analysis of certain ethical terms, and an attempt to discover what, if any, general connections there are between them. No ethical theory attempts *directly* to prove or disprove what we ordinarily believe about conduct. It is necessary, of course, for any theory to assume that our ordinary moral judgments contain *some* truth; otherwise it could hardly get started. And the extent to which a theory justifies, by implication, these convictions, depends on what particular analysis of ethical concepts it adopts. A consistent Utilitarianism would justify them only so far as it allowed they were useful empirical generalizations. And even an Intuitionist doctrine, which Prichard at the time of this article clearly held to be the only true one, is not, or need not be, the doctrine that our ordinary convictions are instances of knowledge. It is, primarily, the doctrine that there are a set of necessary connections between certain factual characteristics and being a duty; that these connections can be apprehended by self-evident intuition, and that they hold irrespective of consequences. But it is a further step to assert that these self-evident intuitions are identical with our unreflective moral convictions. No doubt the statements in which both are expressed are the same, but can it seriously be maintained, when we consider the conditions, such as clear conception of the terms involved, which a state of cognition must fulfil, if it is to claim to be self-evident intuition, that any of our moral convictions, before we reach the stage of reflection, are instances of knowledge? Fortunately, however, though Prichard thinks he is showing that certain theories are unable to justify our moral convictions (which no one would deny), many of his arguments, if they hold at all, hold also against the accounts which these theories offer of the meaning and nature of moral obligation generally, and, as such, his criticisms are interesting and important.

Rightness its Analysis and its Ground.—The main question I want to discuss in this paper in connection with these three moralists is the question, "What makes or renders a Right Act Right?" But, first, I must say something of its relations to another no less important question, viz. "What, if any, is the analysis of the term 'Right'?" (I here use Right as synonymous with obligatory.) I must do this, for it seems to me there is a good deal of confusion about these two questions, and whether indeed there are two. Professor Prichard—rather typically—thinks the second illegitimate. Others, including Professor Field, think that if there is a distinction, it is

unimportant and pedantic. Mr. Ross thinks they are distinct, but I cannot agree with all he says about the matter.

I think we shall see that they *are* distinct, and that the first depends in a peculiar way on the second, if we see first what is meant by the phrase "The *Analysis* of Right." Clearly it is the same as is meant by the phrase "The *Meaning* of Right," or the "*Definition* of Right," but both of these latter are, in my opinion, unfortunate, and liable to lead to confusion. If, then, "Right" has an analysis, that means, I think, that it is a complex term composed of elements, and our analysis exhibits it as a synthesis of these elements, and, if complete, as a synthesis of all these elements in their relations within the complex. It is thus an *analytic* judgment corresponding to the analytic fact that "This whole has these parts." But that does not mean it is an identical, tautologous, or obvious judgment, and I think we can apply a complex term intelligently without knowing its analysis. It is for this reason I think the phrase the "Meaning of Right" unfortunate, for it suggests that whenever we use a term intelligently, we must know its meaning—that is, its analysis.

I think both Professor Prichard and Mr. Ross fall into this mistake. Professor Prichard (*Duty and Interest*, p. 17) says: "When Plato raises the question 'What is justice,' he does not mean 'What do we *mean* by the terms "justice" and "just" '?" "If he had meant that, he would have been raising what was only verbally, and not really, a question at all, in that any attempt to ask it would have implied that the answer was already known." "He means," Prichard goes on, "What renders a just act just?" Now, of course, if Plato had been asking what do we *mean* by the word "Just," it *would* be a purely verbal question, but Prichard doesn't even consider the possibility that Plato might have meant "What is the analysis of justice?" implying by the question that though we can apply the term "just" intelligently, we are still ignorant of its full analysis.

Secondly, it has been contended, as I said, that the distinction between our two initial questions, if real, is unimportant and pedantic. A good instance of this kind of objection is that made by Professor Field, in a recent paper to the Aristotelian Society, entitled "Definition in Ethics." Here Professor Field contends that if one considers the place of definitions in Euclidean Geometry and the Natural Sciences, it will be found that there is a certain freedom in the choice of what properties you take as your definition; consequently, he concludes that the distinction between the meaning of an ethical term and further facts about it is unimportant. Even if Good, he says, is unanalysable, *that* is comparatively unimportant, compared with our knowledge of its synthetic connections with other things. Now, this I believe rests on a confusion in the use of

the word *definition*; and when it is pointed out, I think we shall see that the question whether an ethical term has an analysis is extremely important.

In the first place, a total analysis is a definition; but a definition is not necessarily an analysis, far less a total analysis. And the definitions both of Euclidean Geometry and Natural Science seem to me to be synthetic propositions which serve as sufficient descriptions, and since a term can have several sufficient descriptions, we have a certain liberty of choice. I think it is clear that the so-called definition of circularity is a synthetic proposition, for circular shape, though *describable* in terms of sensible shape, is indefinable. The proposition which states the definition asserts that "Being circular, synthetically entails the property of having points equidistant from a fixed point." And that the connections asserted in the so-called definitions of natural kinds—"Man," "Sugar," "Gold," etc., are synthetic—seems to me still more obvious. For what the definition of, say, "Sugar" says, is that anything which has the qualities which we have in mind when we call it a piece of sugar will in fact have a certain kind of internal structure, a certain melting-point, and several other dispositional properties; and that seeing that these are trustworthy signs of the presence of all the rest, they can be taken as the characteristics which mark off the substance in question from other kinds. Now the connections here asserted are not only synthetic, as those in geometrical definitions, but also contingent, and the properties stated in the definition only serve as sufficient descriptions so long as the causal laws concerned are assumed to hold without exception.

Clearly, then, these sufficient descriptions are not analyses, and we can, if we want, adopt one rather than another; but the definition of "Right," if there is one, would clearly be a *total analysis*, and there can only be one correct one. And the consequence of this is important, as can be seen if we return to Professor Field's contention that what is important is not the analysis of the term but the further facts about it. Now this seems to be true if, and only if, you know that the term is either unanalysable or has an analysis of a certain sort. If Right is unanalysable, but is necessarily connected with Good, then the further fact is, I agree, the more important. Unfortunately, however, there are certain possible analyses of Right which, if true, would entail the non-reality of all these further interesting facts. If, for instance, it were the case that the correct analysis of Right were "being the object of a certain kind of emotion," I think it is obvious that we could no longer speak of any characteristic "necessitating" an act's being right or a duty. What characteristics in things caused them to be objects of this specific attitude could only be discovered by the study of the laws of psycho-

logy; and even if it were found that the only characteristics which in fact caused things to be thus regarded were exactly those which we normally think "necessitate" Rightness, we should have to admit that the connection was purely contingent; causally necessary, perhaps, given the actual laws of human nature which exist in this world, but in no sense logically necessary, or bound to hold in all "possible worlds."

Now, Mr. Ross admits that such analyses are possible, but he thinks them sufficiently refuted by the argument "we never mean that." But, as I said, the judgment which states the analysis of a term is not necessarily an obvious or tautologous judgment, because it is analytic: and if it is possible to know a term without knowing its full analysis, then Mr. Ross's argument is not conclusive. It seems to me, too, that in the case of ethical judgments there are special considerations involved that might well account for our being unaware of the real analysis of the term we were predicating. Mr. Ross, however, does not rely on this alone; he considers any Naturalistic analysis of Right is also refuted by the arguments he uses later against similar accounts of Good. These come in brief to this: If the meaning of Right were "being the object of a certain feeling in some person or persons," then ethical disputes would be impossible, for disputants would never think themselves at variance.

Outline of a Defensible Naturalistic Theory.—I must confess none of all this contents me. It seems to me possible for a Naturalistic Theory to meet these objections, if stated carefully enough; if it does meet them, either new arguments must be found, or else we must admit the possibility that a Naturalistic analysis is true, and that, in consequence, to the question "What necessitates a Right Act's being Right," the answer is "Nothing." I shall now state what seems to me the most plausible Naturalistic Account. It asserts that the analysis of the judgment "This Action is Right" is "The contemplation of this Action excites in me, the judger, a specific emotion of approval." The criticism of the kind offered by Mr. Ross takes the form (i) This must be false. If we consider our moral judgments, it is clear we don't mean *that*—we mean something more objective. (ii) This is still more obvious if we consider the facts of ethical disputes. If this were all the predicate meant, then two people would never dispute, because they would know they were not at variance. It would be impossible, if this were true, for there to be anything about which they were making incompatible statements. You must at least amend it to the form "X is right means X is approved, or tends to be approved of, by a certain set of people." There would now be something to dispute about, but it would be a point which could only be settled by appeal to statistics, and two people who are arguing about an ethical point do not

consider they are arguing about something which can be settled in that way.

These objections seem at first sight strong. Clearly the Naturalistic Theory, to be plausible, must admit that we do not think this, and it must explain (*a*) how it is that in making moral judgments, we make the mistake of thinking that the term we predicate is objective, and (*b*) how it is that we do in moral disputes think that we and our opponent are making incompatible statements. The defence runs thus:

(i) It is the case that most human beings of the same stage of cultural development tend to feel an approval emotion towards actions and things of the same kind—*e.g.* towards such states of affairs as are described by the phrases "keeping a promise," "returning a benefit." It is not necessary that there should be any connection between all these approved objects, or that it is pleasure alone, or what is causally related to pleasure, as Hume thought, which excites approval. It is just the case that the presence of certain states of affairs with specific factual qualities does tend to excite approval in most people of a certain stage of development, though, doubtless, psychological causes in the past would throw some light on it.

(ii) Human beings in general are aware of this fact about other human beings.

(iii) Human beings in general desire other people to have the same emotional reactions to the same kinds of situation as they do themselves.

All these propositions about the psychology of human beings seem to me to be true. The theory now continues. It must be admitted, on any analysis, that the total state of mind of the judger when making a genuine moral judgment is extremely complicated. Whenever he is making a genuine moral judgment and not just voicing conventional opinion, the following factors will be constituents in his total state of mind: (i) An emotion of approval. (ii) A belief, more or less explicit, that other men beside himself tend to feel an emotion of approval towards an object of this kind, and (iii) a desire that *all* men should react in this way to this kind of situation. The sentence he utters is not merely the expression of his judgment proper, but of this extremely complicated total state, the different elements in which are not, of course, clearly distinguished by himself. Clearly, then, even if the true analysis of his judgment were "This action arouses an approval emotion in me," he might well not be aware of this fact, and think he were predicating something more objective.

Now, further, if A's judgment, "This is Right," is questioned by another, B, and he engages in an ethical dispute, he is clearly, on any analysis, doing more than asserting the presence or absence of

a characteristic. For (i) he believes, implicitly, or explicitly, that B, being a human being of the same stage of culture as himself, does in general tend to respond approvingly or disapprovingly to the same kind of situation as himself, and (ii) he desires that B shall do this, and (iii) he knows that because of (i) there is quite a good chance, if the actual nature of the situation is made clear, if errors about its factual characteristics are removed, that B will in fact respond to it in this way. I think it is perfectly plausible to hold that all these factors are present when we are having an ethical dispute. The theory now maintains that, because of this complexity of our state of mind, when engaged in the dispute, when B frustrates our hopes by not responding approvingly to the situation, in the way in which we had—quite reasonably—expected he would, we are led into thinking that there is an independent quality in the situation which he is failing to see and that he is morally obtuse for not seeing it. We are led, that is, into thinking that the predicate we are asserting is objective—a character incompatible with its true analysis.

We must further notice that if this account were true, then even if we were aware of the correct analysis of our ethical judgments, it would still be true (i) that we should have a motive for pursuing ethical arguments and (ii) that the course of such arguments would be precisely the same as they would be on any view whatever. For though, on an objective view, there is in fact an ethical characteristic present, independently of A and B's feelings, still they can only convince each other of its presence by pointing out the non-ethical characteristics in the situation. And so, even if A believes that "Rightness" is subjective, he is perfectly justified in arguing with B, so long as he desires B to feel as he does, and knows that there is a good chance that B will.

I hold, then, that this theory at any rate succeeds in showing that if a subjective account of Right were true, its truth would not be at all obvious to people when making moral judgments, just because both in making judgments of this kind and in defending them against opponents, the judgment itself is only one item in an extremely complex total attitude.

I do not personally believe this can be the truth. But like Glaucon and Adeimantus, I feel discontented with the refutations I have so far heard, and I do not think they are sufficient. In the meantime I am going to assume it to be true that Right (in the sense of morally obligatory) is a unique, non-subjective characteristic, which is capable of standing in synthetic necessary relations to other characteristics, and I will therefore proceed to the question, "What is it that makes or renders a Right Act Right?"

Rightness and its Ground. Some Ambiguities in These Terms.—It is clearly the same question which is being raised when it is asked

"What is the ground of?" or "What is the reason for an act's being right?" I think this is an unfortunate, though a convenient, way of putting it, for strictly it is judgments which are the grounds for other judgments; and though this relation between judgments depends on certain relations between facts and between characteristics, we do not usually speak of the occurrence of one characteristic as being *the ground of* the occurrence of another. The clearest way of putting the question is, I think, "What is the characteristic (or characteristics, if there be more than one) whose presence in an action *necessitates* that the action ought to be done, or from whose presence in an action, it *follows* that it ought to be done?" I think the relation in question is simply that of logical necessitation. It certainly has the formal properties of that relation, but whether it has others besides I cannot feel sure. We should not normally say that "X's being shaped *makes* it to have size," though we should say "*necessitates* its having size." Mr. Ross certainly considers there is a difference, and says of value (p. 121), "That it seems quite definitely to be based on certain other qualities of its possessors."

There are two other distinctions which seem to be not unimportant, which I will draw attention to before proceeding. (i) I think there is a distinction between an *actual* and a *potential* obligation, which perhaps has an analogy in that between sensible and physical shape. To say that an action is potentially obligatory means that it has the property that, given the fulfilment of certain conditions, it will be an actual duty. If, for example, someone maintained that the characteristic of being the fulfilment of a promise by X to Y, necessitated that the act was obligatory on X, strictly he could only mean "potentially obligatory"; for it doesn't follow from the presence of that characteristic that X actually ought to do the act, but only from the presence of that characteristic and the fulfilment of a certain condition, viz. that X can perform the act voluntarily if he chooses. I think this distinction is more than a pedantic one, and it is worth pointing out that in the case of our judgments on other people we can never know more than that a certain course of action is potentially obligatory.

(ii) I think Mr. Joseph is correct in pointing out that we use the word "Right" ambiguously. We sometimes mean by it just the fact that an action ought to be done, and sometimes a characteristic possessed by actions which ought to be done. In this latter sense it is a characteristic which can be defined without reference to "ought," and which can be predicated of an imagined course of action whether or not anyone actually "ought" to perform it, though its presence would, of course, necessitate the proposed course being in my sense "potentially obligatory." I shall try in what follows to restrict the word "Right" to this second sense—the sense in which it is not

synonymous with "obligatory," but I cannot promise to be quite consistent.

Let us now turn to the main problem. The course I intend to follow is this: I shall first consider the arguments of Professor Prichard and Mr. Ross, which attempt to show that the ground of our obligations is not to be found in any form of Goodness; then their positive theory, in commenting on which I shall consider Mr. Joseph's criticisms; then, in turn, Mr. Joseph's positive theory; and finally I shall try to say briefly what seems to me to be the truth about the matter.

Rightness and Goodness.—The negative arguments of Prichard and Ross are slightly different, but their main contention is the same. Briefly it is this: that it can never be true to say, either, "you ought to bring about a good consequence," or "you ought to act from a good motive." Hence it can never be true that the reason for an act's being one we ought to do is either its intrinsic goodness or the goodness of its consequences. This is a fairly startling conclusion. But I think if we look at the arguments we shall see there is no reason to think it true. Let us consider first goodness of consequences.

(*a*) *Rightness and Utility.*—On page 24 of the article (*Mind*, 1912) Prichard says that the view he considers false "contends that if something which is not an action is good, then we ought to undertake the action which will, directly or indirectly, originate it." This view Prichard considers must be false because it presupposes that "What is good ought to be," but this cannot be true because "ought, refers to actions and to actions alone," and this apparently because "actions and actions alone are in our power." I must confess I can see no cogency in this whatever. It is surely obvious that it is at times in our power to produce a certain result, *i.e.* to do an X which, owing to the fulfilment of conditions whose fulfilment we expected, does in fact cause a Y. I can see nothing, therefore, inconsistent in the statement "This good state ought to be produced, if possible," and in cases where we believe it to be possible in saying "I ought to produce this good state," though no doubt we have to wait for the consequence in order to know whether our belief in the possibility of producing them was true or not.

Mr. Ross has two arguments on good consequences. (i) The first of these is, I think, perfectly sound, but it only attempts to show that goodness of consequences is not *always* the reason for an act's being a duty. The argument is this: even if we knew that the nett value of the consequences of an act A would be greater than those of an alternative B, it is not self-evident that we ought to do A. Suppose, for instance, that a certain act A involved the breaking of a promise and its nett consequence value was 101 units of good, and

B, which was the keeping of this promise, had, as nett consequence value, 100 units of good. Is it, Mr. Ross asks, self-evident that we ought to do A? It might be argued in reply that such a case is not really possible, if we take into account the indirect utility of promise keeping; but Mr. Ross has no difficulty in showing that the indirect utility of keeping a single promise has been much exaggerated, and I consider that on the whole his argument is quite conclusive. It of course leaves open the possibility that in some, or most, cases the reason for an act's being a duty lies in its consequences.

But (ii) Mr. Ross goes on to argue that this is really not so. For even in cases where the ground of the obligation lies in the good produced, it is not true, he maintains, to say that the act is right because it, being one thing, produces good results different from itself; it is right because it is itself the production of a certain state of affairs. Now this, I submit, is just a question of language, and further, that Mr. Ross's use is a peculiar one. He distinguishes between an "Action" as the originating of a change and an "Act" as the change originated, and presumably whatever changes the agent intended, however indirectly, to bring about, fall within the content of the "Act," the rest being mere consequence. The more usual distinctions, I should say, are between (*a*) Our deciding to act; (*b*) Our Action, which consists in the doing of something which is immediately in our power and the thought or intention which animates it —*e.g.* getting out of this chair with the thought of going for a walk; (*c*) The foreseen consequences of an action; and (*d*) Those unforeseen. And within (*b*) I don't think it is really possible to distinguish our originating a change from the change we originate, or our "action" from our "Act." At least the doing and what I do cannot be distinguished to the same degree as my thinking from what is thought.

What then is the cash value of this part of their negative theory? It has been shown, I think, that Utilitarianism cannot provide a ground for all the acts we ought to do—and this perhaps we should all have admitted before.

(*b*) *Rightness and Intrinsic Goodness.*—Now for *intrinsic* goodness. Professor Prichard (p. 26) maintains that intrinsic goodness consists in being done from a good motive, either a moral or a virtuous. In view of Mr. Ross's peculiar view of action, it is difficult to know what he would consider intrinsic or intrinsic to what. But I dare say he would agree with Professor Prichard. I think we ordinarily mean by intrinsic good the goodness which an "Action" (in my sense *b*) possesses in virtue of its qualities as opposed to its relations, and I don't see why we should accept Professor Prichard's identification of this with goodness of motive. I think an action might be intrinsically good, morally, apart from the goodness of its motive, and also intrinsically good non-morally. However, let us confine ourselves to

motives, and see what the arguments prove. It is asserted that it cannot ever be a duty to act from a good motive, hence goodness of motive, if present, cannot be the ground for an act's being a duty. There are some general arguments to show this is true of any motive, and then a special argument which applies to the "sense of duty."

The general argument which is put forward by Mr. Ross is that it cannot be one's duty to act from a good motive, because the having, or not having, here and now, a good motive, is not in one's power, and "ought" implies "can." This by itself only shows, I think, that it cannot be a duty to act from a good motive when you have not got it. Is there any reason why I ought not to act from a good motive if I have it? I think Mr. Ross would maintain that even when I have a good motive, my duty is not to act from it, but just to act. "Motive," he says (in p. 43), "never forms part of the content of our duty; if anything is certain about morals, that I think is certain."

Professor Prichard clearly thinks the same. He says (pp. 26, 27), "The rightness of an action concerns an action not in the fuller sense of the term in which we include the motive in the action, but in the narrower and commoner sense in which we distinguish an action from its motive." He goes indeed so far as to think there is a definite contradiction in feeling an obligation to act from a certain desire. I cannot be sure whether he thinks this contradiction is present whether or not I already have the desire, or only when I have not. I must say I cannot see the contradiction in either case. "To feel I ought," says Professor Prichard, "is to be moved towards." I suppose he means, by this, to have a certain peculiar kind of desire or impulse towards. He goes on: "But what I can be moved towards, is always an action, and not an action in which I am moved in a particular way, *i.e.* an action from a particular motive, otherwise I should be moved towards being moved, which is impossible." Now, if the motive is already present, there is surely no need to be moved (i) towards being moved, (ii), for *ex hypothesi*, I am already moved, (iii), *i.e.* have a particular motive. And one is only moved or has an impulse towards something which is not yet, not towards something already there. But, secondly, even if I have not got the particular motive, is there any contradiction in being moved, *i.e.* having the peculiar impulse called "feeling obliged"—towards having it? The only thing which is impossible, as far as I can see, is that I should in fact *be* obliged to have it, if I cannot by an effort of will produce it.

I think, however, that there is a real difficulty, due chiefly to an ambiguity in the phrase "obliged to act *from* a motive"; but I will deal with it after considering Mr. Ross's special argument to show

that it cannot be a duty to act from the sense of duty. Let us first get clear what the phrase "a sense of duty" means. I think it means, in the first place, the capacity to apprehend in situations the presence of such characteristics as "right," "obligatory," "dutiful," and the capacity of being influenced in one's behaviour by such judgments. And when we say X did so and so "from a sense of duty," we mean that his belief that this course was right, was a *necessary* motive factor in his doing it; and when we say "X did so and so purely from a sense of duty," we mean that the belief was a *sufficient* motive factor, whether or not other factors were in fact present.

Mr. Ross's argument is a *reductio ad absurdum*. If, he says, we say "It is my duty to do A from the sense of duty," this means, "It is my duty to do A from the sense that it is my duty to do A." Here, he contends, the whole sentence is in contradiction with the second part of itself, and if we try to correct it we get an infinite regress of the form "It is my duty to do A from the sense that it is my duty to do A from the sense that . . . ." Now this, I submit, is just not true. The whole sentence does not deny that it is my duty to do A. What it says is that my doing A will be the doing of a duty, if, and only if, I do it motived by the belief that it is a duty. It asserts a synthetic connection between A's being a duty and my believing that it is. But this does not falsify the belief that it is a duty to do A. If p implies q, I don't contradict that proposition by asserting that p is true, whether I know or not that its being true entails q's being true.

Is it then the case that when I have a good motive, whether it be the sense of duty, or a good desire, my duty is to act from that motive, or is it simply to act? There is, as I said, an ambiguity in the phrase. It might just mean "Is the motive part of the content of what I ought to do?" I think the answer to this is, "Yes, always." I shall try to defend this view shortly. But it might mean "is the presence of a good motive ever the reason why I ought to do an act?" Here it seems to me that it depends on the specific nature of the motive. If the motive is the sense of duty, I do not think it can ever be the ground of the obligation. The reason for this is that the sense of duty essentially is or contains a judgment about the act's rightness, and if in any case the obligation to do one thing rather than another depended solely on the goodness of the sense of obligation, it would follow that whichever we believed right would in fact be right, and that is surely impossible. If, however, the motive be some other good desire, such as a kindly impulse, I think there are some cases, as Mr. Joseph suggests, where, when two alternative courses are otherwise morally equivalent, and we are inclined to one by a kindly impulse, and to the other by one that is morally indifferent, we should do right to choose the first just because of its

better motive. But cases where the sole ground of an obligation lies in the value of the motive seem to me, I must confess, rare.

To sum up, although I cannot agree with all the positive arguments of Professor Prichard and Mr. Ross, I think it is plain that the reason for an act's being a duty seldom, if ever, lies in the goodness of its motive, and never in its being motived by the sense of obligation. I shall try to show later, however, that two propositions are true which are, I think, quite consistent with this:

(i) That we always ought to act from a motive, never just to act.

(ii) That a certain goodness of motive is a necessary condition of, though not the reason for, an act's being a duty.

Mr. Ross's Positive Theory.—The positive theory which Mr. Ross gives us, with the outline of which, at any rate, Professor Prichard, I think, agrees, can be stated quite shortly. There is no single reason why all the acts which are duties are so. There are, on the contrary, a great many totally distinct relations by standing in any one of which an act acquires the characteristic of being in Mr. Ross's phrase a *prima facie* duty, or in Professor Prichard's a "claim." Thus, if an act has the character of being the fulfilling of a promise made by the agent to Y, it is for that reason a *prima facie* duty, or, again, it would be so in virtue of being the repairing of a wrong done to Z. These logically distinct factual characteristics necessitate without qualification the character of being a *prima facie* duty, and the necessitation is seen on inspection to be self-evident. The number of the characteristics on which being a *prima facie* duty depends, cannot be stated precisely, but they correspond roughly to the ordinary moral maxims we recognize in everyday life. Among them is, of course, the duty of beneficence, but it is only one among them, and there is no essential connection whatever between "goodness" or "value" and being a *prima facie* duty. When *prima facie* duties conflict, our actual duty is to choose the more urgent. No general principles can be given for this, and in the question of discovering our actual duty we have to be content with probable opinion, and cannot expect self-evident intuition as with knowledge of *prima facie* duties. The actual rightness of an act depends on all those characteristics in virtue of which it is *prima facie* right or *prima facie* wrong, and so is what Mr. Ross calls a toti-resultant property. The characteristics on which its rightness depends are, of course, those which belong to it solely as an "actum"; it is equally what is right that we do whether our motives are good, bad, or indifferent. If the motive be good, the "action" which originates the "actum" is morally good; the "actum" itself whether right or wrong, has no intrinsic value, though in the case of duties of beneficence it will be the producing of something good.

This account presents, I think, a very fair picture of our actual experience in deciding what to do, and the doctrine of *prima facie* duties is clearly a great advance on the theory of self-evident actual duties which Professor Prichard seems to have held when he wrote his article. But I cannot accept it as the whole truth about the matter. I think it must be false—

(*a*) That there is no necessary connection between Goodness and being a duty. If there are any necessary connections in Ethics, this, it seems to me, must be one.

(*b*) That Right acts can be *so* independent of motive, that a man can do what is right if he acts from a vicious desire.

Yet there are innumerable difficulties in establishing their falsity, and Mr. Joseph, who attacks both positions, does not, I think, steer clear of difficulties. In regard to (*a*) the difficulty is this: There clearly are actions whose consequences we believe will be on balance bad, and to which we are inclined by no motive whose goodness could be a reason for their being duties. Yet we are convinced they are acts that ought to be done. But where does their goodness lie? If we are to refute (*b*), there are certain conditions our answer must satisfy. It must be compatible with the fact that to produce a good motive, if we have not one, is not in our power, and that we cannot be obliged to do what is impossible. If then a man has a bad motive for doing what he ought, how can it be his duty to act from a better, yet how again to act from the one he has? We seem driven back to say with Ross and Prichard that his duty is just to do the act.

Mr. Joseph's Criticisms.—Mr. Joseph's discussion of act and motive does not, I think, totally avoid this dilemma, but its general principle is clearly sound. The argument is this: You cannot, Mr. Joseph says, separate an act from its motive and then regard the former as something to which ethical predicates can be attached. At least, if you do so, you are regarding the relation of motive to act falsely, on the analogy of the relation between a physical cause, one thing, which produces an effect, another. But the motive which leads a man to act animates his action throughout in a way analogous to nothing in the physical world, and if you abstract it from his act, you have nothing left but purely physical motions of matter, and these cannot be called right or wrong. I agree with this in the main. I think, though, we must include "intention" under what Mr. Joseph calls motive; we must remember, too, that in a long act—what we should usually call an "enterprise"—one's original motive often drops out of sight, and there is a good deal of conscious willing and thinking, which, though modified by the motive, is not included in it, and could still be the subject of moral predicates, if the motive were abstracted. Mr. Joseph goes on to contend that it is in consequence a mistake to speak of doing the

same act from different motives. There is no one act answering to the phrase "paying one's bills," which would be right, from whatever motive it was done.

If the motive is different, the act is necessarily different. So far, I agree; but Mr. Joseph's application of the principle seems to me to be mistaken. He gives an example. I promise to take Paul to a race, though I do not like him. Then I decide to break my promise in order to meet Peter somewhere else; but finding Peter is coming to the race, I decide to take Paul, because I am going anyhow. My act will not, except externally, be the same now as if I had taken him because I promised, and it is not, according to Mr. Joseph, a right any more than a moral act. So far again I agree. But I cannot agree with Mr. Joseph's next statement, that so far as I take him for any other reason than because I promised, I fail to do what I ought. For in my present situation—a situation admittedly bad and due to my own fault—I cannot take him just because I promised, and consequently that cannot be my duty. It would be so, no doubt, were the situation as it was before I decided to break my promise. There is, however, something I ought to do, but it is not, I think, either just taking Paul, nor yet taking him because I promised.

Suggested Emendation of Mr. Joseph's Theory.—I will take another case to try and illustrate the point. Suppose an agent is in a position in which it is his duty to pay a visit to an elderly and uninteresting relative, and further, that the agent knows that the elderly relation is more likely to leave his money to him if he shows him the external signs of affection. Now we can suppose a series of situations identical in these respects, but differing in the state of mind of the agent. A may be inclined to pay the visit through affection; B may have no such inclination, but may be moved by a sense of obligation; C may be aware he ought to go, but this belief, though in some degree operative on his will, may not be sufficient, without the ulterior motive, to determine his choice; and, finally, D may just never have bothered his head about what he ought to do, but reflecting simply on what will pay him best, may have seen that it was to his interest to go. Now, it looks at first sight as though in all four cases the agent ought to pay the visit, yet can it be true of D either that he ought to pay it from the motive he has, or from the sense of obligation which he has not? Ross and Prichard would say, it is his duty to go, not to go from a certain motive.

I think, though, that another account is possible, which I dare say Mr. Joseph would not agree with, but which is suggested to me by his account of Peter and Paul. Statements such as "you ought to visit X" describe the act to be done by referring to its *determinable* character. But it surely is not true that any act answering to this determinable description would be a fulfilment of the

obligation. I think that in any situation in which it would be true to say "X ought to pay a visit to Y," what is obligatory on X is always the doing of an action characterized by some particular *determinate* character which falls under and entails the presence of the determinable characteristic "paying a visit to Y"; and what precise determinate course is obligatory depends on the detailed nature of the situation, including the agent's state of mind at the moment.

Now take C, the man whose motives are mixed. It is true he cannot act purely from his better motive, but there is something he can, and which we would consider he ought to do, namely, to behave as much as possible as though he were moved solely by the better motive, and not to allow the ulterior one to prevent his doing anything during his visit which he would do if moved solely by the former. And so, though his act will externally be the same, perhaps, as that of A and B, still what in its determinate form he ought to do will really be different. And, moreover, just because his state of mind is such that he cannot in the first instance be moved to pay the visit, except by a total motive in which perhaps bad preponderates over good, yet if he does what strictly he ought to do, it will be a course of action which, because it involves a moral effort, which is in his power, will *pro tanto* be morally good. D's case is, I think, quite distinct. If the moral aspects of the question have just not occurred to him, it is impossible, I think, to speak of his being obliged; he certainly does not do anything he ought, but there is nothing right which he can do, and so, though perhaps we can say his act was wrong, we cannot strictly say he has failed to do his duty. I think the mistake of Ross and Prichard is this: They assume that what is one's duty in a particular situation can be discovered without reference to the state of mind of the agent, and they are then compelled to hold that motive can form no part of the content of duty. And, I think, they are led into this by the fact that the statements in which we refer to the action usually refer to its *determinable* characteristics. But in truth, I think, it is only after knowing the agent's state of mind that we can know what exactly is his duty and whether indeed anything is. The position of Mr. Joseph's racegoer is, I think, analogous either to C or D. If he is at all morally awake after his first lapse, his duty is, I suggest, not to take Paul because he promised, for that he cannot, nor yet just to take Paul, but to take Paul, and see to it that he fulfils if he can whatever expectations in Paul he would fulfil if he were taking him just because he promised. If, on the other hand, he is morally quite obtuse, he neither does his duty, nor fails to do it, in taking Paul anyhow, though perhaps what he does is wrong.

If this account or something like it is true, it follows that if we

really do what we ought on any occasion, our action must issue from a good motive, or at any rate be the expression of a certain moral effort, and so in some sense of a good state of mind; if not, then either we have failed to do what we ought, or there was strictly no obligation at all.

Actions, then, are the things you ought to do—actions in the full sense, and not just "acts." And the doing of what is right is always in some degree the expression of a good state of mind. But this takes us a very little way in establishing the contradictory of proposition (*a*) in establishing that what makes an act a duty is always some kind of goodness. For *that*, we saw, cannot lie in the motive in so far as it is the sense of obligation, and in those perplexing duties, such as the keeping of promises, where they result in consequences on balance bad, there is seldom present any specifically good desire in which we might find the ground we want.

Mr. Joseph is, I am sure, perfectly clear on this point, but some of his statements seem to me unfortunately phrased. He contends that, in contrast to what he calls the sense of duty in general, there is a narrower meaning of the term which he defines "as the sense of a duty to realize the goodness connected with the particular principle of the action which is recognized as a duty now"; or again, "as the sense of a duty to act in a particular way here and now" (p. 50); and this latter, he says (p. 50), "may be the motive making the rightness of the act"; and again (p. 51), referring to the urgency of this thought of a particular duty, he says, in the case of a man who feels it, "what he thinks right, is so, because in it that urgency is preferred to the contrary inclination." I am not perfectly clear about the distinction between these two *senses*, but I think what Joseph must mean, by the narrower sense, is the thought of a particular course as right, because of some characteristic which it has, without consciously thinking of the rightness as something instanced in other situations as well. But surely it is clear that, whether the distinction is an important one or not, the "narrower" sense of obligation, just because it is essentially a judgment about the act's rightness, can, no more than the "wider" one, be what makes the act right.

Mr. Joseph's Positive Theory.—I shall now try to state what Mr. Joseph's real view of the matter is. We have to find a goodness in those cases where it cannot be found in consequences, which can be the ground of an obligation; such cases clearly occur, and unless a goodness can here be discovered, we shall have to admit that we ought at times to act for other reasons than for the sake of something good. Mr. Joseph says we must look beyond the act itself, but not in the direction of consequences. These acts are good because they are elements in a system or structural whole that is good (p. 87).

Here I will quote. He says (p. 98): "We must look beyond the particular action, not to its effects, but to the rule of which it is a manifestation." "This, however," he goes on, "is not enough. We must look to the whole form of life in some community, to which all the actions manifesting this rule would belong, and ask whether it or some other form of life is better which would be lived by the community instead, if this rule were not helping to determine it. If we judge that it is better, then the particular action is right for the sake of the better system to which it belongs" (p. 98). Again (p. 100), "we must do it not so much for its own sake, as for the sake of a goodness in that form of life which the rule requiring the action would determine."

Difficulties in This View.—This may be the true account, and of course it cannot be proved wrong. But it would, I think, have to defend itself against a good many of the criticisms which have been levelled at Green and Bradley, and with these there is no time here to deal. But I must remark:

(i) I cannot find myself making any such implication whenever I judge a promise should be kept, though its consequences are likely to be bad.

(ii) It does seem to me that there is a goodness—much nearer at home, if I may say so—in the keeping of a promise as such, which lies neither in its consequences nor in its relation to such a system as Mr. Joseph conceives, but lies, I think, just in its immediate relation to the situation in which it originates. And I think, in all instances of the kind of act we are considering, there is a peculiar relation involved which does immediately confer value on what is done. Kant, it will be remembered, found the "complete good" in the due apportionment of Happiness to Virtue, and the total value of the whole in this case is clearly due in a large part to the relation between the two terms. Mr. Ross finds he must include this state as at least one among his goods, if not indeed the highest, and admits that on this fact the duties of justice largely depend. But it seems to me clear that no less in the keeping of a promise, the returning of a benefit, or the telling of the truth, is a similar relation to the situation involved. Between somebody's explicit or implicit expectation and my fulfilling it there is a relation, if not identical, at least analogous to that between virtue and its reward, and I think when we do what is right in the former cases we can with a slight stretch of language be said quite truly to be doing what is "due" or "just"; and if the apportionment of Happiness to Virtue be intrinsically good, I cannot see why what I immediately bring about when I fulfil a promise should not, because of the relation involved, be good.

Now this account explains at least one point, I think, better than

Mr. Joseph's. Even when we decide we ought to break a promise to avoid a very bad consequence, we feel that though the best on the whole has been chosen, a definite good has had to be sacrificed just in the breaking of it. I think this is only explicable if the good in question is very intimately connected with the particular principle manifested in the action, in this case foregone. But the good of Mr. Joseph's good system is not really so closely connected with the particular principle; for if we ask him whether the life of his hypothetical community would be better, on the whole, if all promises were kept, or if they were usually kept and sometimes broken, he would have to answer, that if the conditions were at all as they are in actual communities, the life would be better if they were sometimes broken.

I think the main objection Mr. Joseph would bring against my view is that it involves that goodness is a quality which is manifested in particular instances, whereas he has shown that it is not a quality but a "system," and that to say a thing is good is either to say it is such a system or is an element in one. But I cannot see the cogency of this argument. The reason seems to be that when anything is really good it is impossible to distinguish between what is good and its goodness. This is true of God as the Schoolmen thought, and would be true of a perfect poem, if there were one. But the only reason given for this view, as far as I can see, is that in the case of things which are good there is nothing in their nature which does not contribute to their goodness; but this only shows, I think, what I should agree with, that goodness is only to be found in wholes which are "coherent" or "organic," and such, therefore, that the slightest change in any of the parts would so alter the structure of the whole that its value would no longer be the same. Mr. Joseph might still contend that in any case a coherent structure is a necessary condition for goodness, and in the case of the acts in question this condition is not fulfilled, unless we look beyond them to a wider context. But surely the intentional bringing about of a just relation is a coherent activity, and it in extensiveness of structure it falls short of the good life of a community, in unity it clearly far surpasses it.

At any rate, we are agreed that what is right is so, always, through relation to some specific kind of goodness; or rather, that to be right is always to be good in some particular way, which rightness constitutes the ground of our obligations. But, regrettably, Mr. Joseph does not tell us how his different specific goods—those of system, and those of consequence—are related. He really leaves us in the end not with a single principle, which was what he set out to seek, but with two which are left disconnected. For the trouble just is that "goods" conflict, and one has to be sacrificed to the other. It

seems to me that we can only say that Rightness is what is best on the whole; and if, assuming you to be a moral subject, I say, "You ought to do what is right," I mean, "You ought to do that one of the courses open to you, which, though it may involve sacrificing consequential good to a good more intimately connected with the immediate situation, or *vice versa*, yet on balance brings into existence the greatest possible good." And for discovering which that act is, no infallible criterion can, as far as I can see, be given.

ENTROPY AND EVOLUTION

PROFESSOR J. JOHNSTONE

THE conception of entropy came from the theoretical study of the steam-engine, and, neglecting refinements of mathematical treatment, can easily be illustrated. The motive power of the engine comes from the transformation of the heat generated by the combustion of the fuel. The mechanism transforms the kinetic energy of the molecules of heated steam into the kinetic energy of the parts of the engine. Consider a steamship under way: for a brief period of time this can be regarded as an automatic physical system. Some of the heat conveyed by the steam transforms directly into mechanical energy and some passes out into the ocean in the condenser water. We take the latter fraction: in the boiler there is a certain quantity, Q_1, at a temperature of, say, 200° C., that is, 473° absolute, and its entropy is simply $Q_1/473°$ ab. The same quantity passes out into the ocean where its temperature falls to, say, 10° C., or 283° ab., and its entropy is now $Q_1/283°$ ab. Plainly the former quantity of entropy is less than the latter, so that *in the transformation of heat into mechanical energy entropy has increased.* The conception has been generalized so as to include all forms of energy and all physical transformations, and it can be shown that in all physical events *that occur of themselves* entropy increases. The conception includes these notions: (1) Available and unavailable energy; (2) greater or lesser improbability of the elements of the systems contemplated; and (3) the physical meanings of before and after. (1) The existence of a quantity of heat at the temperature of 473° ab. implies the availability of this energy for the performance of work, but this work having been done, and the temperature of Q_1 (the quantity of heat-energy) having fallen to 283° ab., the latter cannot now be made to undergo any further transformation which will result in the performance of more work. It has become unavailable, but the unavailability is relative to human power of control of the energy concerned. It is perfectly conceivable that the molecular motions in sea-water at 10° C. (283° ab.) might be so utilized, and Maxwell's fiction of the "sorting demons" demonstrates this. The "demon" was regarded as a being with finite powers similar to those of man, and differing from man only in size, and it is quite possible that micro-organisms which approximate in size to that of large molecules may utilize the molecular motions of water at the temperature of the ocean so as to do work—the possibility may, perhaps, even

be capable of experimental verification. (2) Heat, *of itself*, "flows" from regions of higher to regions of lower temperature, and so the existence of a quantity of heat at 473° ab. anywhere on the surface of the earth is improbable, for soil, ocean, and atmosphere are at a temperature approximating to 283° ab., and therefore this heat will tend to flow and become uniformly distributed throughout its environs. The higher heat-potential in the boilers of the steamship must therefore be maintained by human agencies (feeding the furnaces with fuel). Along with availability and unavailability of energy there goes, respectively, greater or lesser improbability of the distribution of the latter. (3) The succession, before and after, is given to us directly in intuition: we experience the succession. But there may be nothing in the bare physical descriptions of two events, say, two lunar eclipses, to indicate which was earlier and which later. Such events occur in physical systems that are already "made"—that is, in those where energy is wholly dissipated. But if dissipation is incomplete, time has (in Eddington's phrase) its "arrow," or direction. Let there be two events, *a* and *b*, and let the entropy of the system in which *b* occurs be greater than that in which *a* occurs: *b*, then, is the later event. Imagine a sun-earth-moon system in which energy were wholly dissipated, that is, in which entropy has already attained its maximal value. There would be periodically occurring constellations of positions of the three bodies, but no one constellation could be regarded as earlier or later than any other one. Time would have lost its arrow and become eternity, or, at any rate, pure extension.

Energy that is "free," or is available for the performance of work, or is susceptible of transformation into other forms, is therefore energy which, relatively to the stock of universal energy, occurs in some improbable state, or aggregation. Value, or availability, can be related to improbability without directly considering physical energy. It would be easy, for instance, to devise a card-game in which the "value" of a "hand" depends only on the number of "trumps" held. Obviously, when we consider four players, the most probable number of trumps held by each will be three. Six, say, is less frequently held, or is more improbable in its occurrence, and thirteen trumps in one hand will be possible, but highly improbable (when the cards are dealt "methodically at random"). Now the value of the hand, from the point of view of winning tricks, is some function of the probability of the distribution of the cards.

The most convenient model of a physical system for mathematical investigation is a small volume of some perfect, monatomic gas contained in an envelope that has rigid walls. The system, at constant temperature and pressure, and in the absence of any external field of force, consists of a very great number of molecules moving

in straight lines and in all directions, and with a certain range of free paths and velocities. The directions of movement are random ones, for the molecules continually collide with each other and with the walls of the container. It is possible, in imagination, of course, to specify each molecule by giving it six co-ordinates, three to specify its position with reference to some origin, and three vectors that specify its velocity and direction of movement. (In the cases of gases made up of complex molecules other co-ordinates are necessary.) The container is divided into a number of "cells," any one of which is very small relatively to the volume of the former, but still large enough to contain all, or a large fraction of all the molecules, if we imagine the gas to be greatly compressed. If, now, we "sample" the system by taking any one cell at random, we shall find that the number of molecules, the mean velocity, the mean free path, etc., will be very approximately the same as they are in any other cell. This is the normal state of the gas—one of maximum probability of distribution—and if this distribution is disturbed by, say, the compression of the gas in any cell, the state of normality will speedily be restored. A rough approximation to the conditions of the model may be pictured by considering the atmosphere of a large workshop in which there is machinery that can compress the air into a steel cylinder. A state of improbable distribution is so established, for the pressure of gas within the cylinder may be, say, a hundred pounds per square inch, whereas everywhere else within the room the pressure is only that of the atmosphere. The distribution is improbable because the compressed air in the cylinder will blow out of itself, and in a very short time the density of gas in all parts of the workshop will be everywhere the same. The improbability implies available energy, for the compressed air of the cylinder can be made to actuate some machine. When, however, uniformity of pressure has been attained, there is no longer available energy in the system. The air is made to assume the improbable condition of pressure (by being compressed), but it is quite conceivable that such an improbable distribution might occur of itself (both in the workshop and in the mathematical model). It is quite conceivable also that heat may be similarly segregated—we find, from experience, that the tip of a poker, made red-hot in the fire, speedily cools, and imparts its heat uniformly to the atmosphere and walls of a room; but it is also conceivable that the cold poker may, of itself, become red-hot by being bombarded, in certain ways, by the molecules of the surrounding air. These extraordinary occurrences are not impossible—they are simply highly improbable. Returning to the gas-model, we see that its normal and most probable state is that of uniform distribution of the molecules of gas, and that if, for any reason, this state is disturbed the return to maximum probability

follows. We see also that great improbability implies available energy and decreased entropy, and *vice versa*, and it is easy to show that in such a system the entropy is proportional to the logarithm of the probability—a result of considerable theoretical value.

The gas in our model may, then, be imagined to exhibit many states of departure from uniformity of conditions, and it is possible to construct a system of equations which will represent the probability of every such variation from the most probable state—that of complete uniformity. We now remove a restriction with which we began the investigation: the gas is always acted upon by external agencies. There is the gravitational field of force, for instance, and it would be easy to show (by a delicate aneroid barometer) that the pressure of the air in the workshop directly below the ceiling is just a little less than the mean, and that it is a little greater than the mean just above the floor. We allow for these agencies (which will affect the probabilities already discussed) by inserting certain co-efficients, called "parameters," into our system of equations. The latter now represent the probabilities of all possible distributions of the molecules of the mass of gas that is being acted upon by some external agencies.

We shall now consider the distributions of the materials and energies of the whole earth by the methods just outlined. The extension of these methods, from the theoretical gas-model, to the sun-earth-moon system is not at all fanciful, for already this small part of the cosmic evolutionary process has received considerable mathematical formulation, with results that are, at the least, very plausible. The state which is regarded as the initial one, then, is the detachment, from the parent sun, of a "filament" of hot gas. This was the result of the gravitational attraction caused by the near approach to the sun of a wandering star of mass that was comparable with that of the sun. After detachment this "filament" of incandescent gaseous materials rapidly gravitated together, and, assuming a certain mass and temperature, its further states can be calculated. It condensed by radiation of heat, so as to form several planetary nuclei. In each nucleus there was formed a central liquid or quasi-liquid core, or centrosphere, composed of metallic materials surrounded by less dense, concentric shells. Next to the centrosphere is the lithosphere, a thick layer of basic rock, consisting of a complex mixture of silicates. Very soon after the initial state the external layer of the lithosphere became solid, and underwent differentiation. During this latter process masses of the underlying molten rock-material, or magma, became extruded to the surface (processes which still go on), with the liberation of water and gases. Thus the two exterior earth-envelopes, the hydrosphere, or ocean, and the original atmosphere, were formed. Neglecting, for the moment, the

activity of life, we can easily see how this whole process represents a series of earth-phases, each of which is more stable, or physically probable, than the preceding one. The materials of the original lithosphere became differentiated, so that a less dense, granitic, or acidic, rock-layer became superposed on the basic one. This acidic layer is represented by the materials of the continental elevations, and the original basic lithosphere is probably represented by the deep ocean bed. Water extruded from the underlying basic magma filled up the oceanic depressions, and an original atmosphere, consisting of nitrogen, carbon dioxide, carbon monoxide, etc., formed a uniform layer over the whole surface of the earth. While this was going on the energy of the original, incandescent, vaporous earth was being dissipated, inasmuch as heat was being transmitted outwards to the surface to be radiated into cosmic space, and the internal energy of heavy radioactive atoms was also being dissipated as heat. These latter processes still go on. Thus, with the process of energy-dissipation and entropy-augmentation the materials and energies of the earth have been assuming more and more stable or probable phases, and are continually tending towards some future phase in which their distribution will have attained to maximal probability.

Physical agencies have acted, and still act, in such ways as to delay the attainment of ultimate stability. The earth-interior is still strongly heated, and tends to cool very slowly. While it cools the already cold layers of the lithosphere fall inwards upon the contracting, but still hot, basic layer. There are volcanic eruptions, lava outflows, diastrophic movements of the "crust," with mountain formations. There is sub-aerial denudation of elevated crustal materials, so that mountainous regions are continually being levelled down. There is radioactive disintegration of certain elements and consequent generation of heat. Gravitation maintains the stratification of the atmosphere. The attraction of sun and moon maintain tides in an ocean upon a rotating earth. Solar radiation maintains movements (currents and winds) in the rotating ocean and atmosphere. And so on. These physical agencies so act as to delay the ultimate state of equilibrium of the earth envelopes. If we assume certain physical conditions, mass, temperature, etc., of the original earth-filament, it should (with greater knowledge than we now possess, of course) be possible to construct a system of equations that would represent all phases of the earth-system from its initial one to that ultimate phase which we envisage in the remote future, when solar and terrestrial energy will have become completely dissipated, and when our solar system will have attained final equilibrium. In this series of phases an initial earth-system characterized by its high degree of physical improbability proceeds to a

phase of high probability. Initial, minimal entropy continually tends towards final, maximal entropy, and time flows in the direction, lesser to greater entropy of the system.

We shall next consider the various earth-envelopes just as we have considered our theoretical gas-model. We imagine the lower strata of the lithosphere partitioned into cells of appropriate magnitude, and we then sample these cells at random. There is evidence that tends to show that everywhere under both the oceanic depressions and continental elevations the basic lithosphere has the same thickness, density, and chemical constitution. If we partition Eurasia into sub-regions of, say, several thousands of square miles of area, we shall find that the acidic continental rocks are much the same in any cell sampled at random. We divide the ocean into similar cells and find that the mean depth in each and the chemical composition of the water are approximately the same. We partition the atmosphere into cells and find that the chemical composition is everywhere very nearly the same. We do find departures from strict uniformity of conditions. Thus the surface of the earth is not that of the theoretical geoid, for there are continental elevations and oceanic depressions (though these are so minute, on the earth-scale, that they cannot be represented, visibly in relief, on a 20-inch terrestrial globe). The temperature of the ocean water and the atmosphere vary with the latitude. The motions of the ocean (waves, tidal-streams, and wind-drifts) may be compared with the motions of the molecules in the gas-model, inasmuch as they are largely random motions and are approximately the same in all the cells. Nevertheless, there are slow resultant currents in the ocean that vary in direction as we pass from cell to cell. The motions of the atmosphere (winds) are largely random ones, yet there is a large-scale atmospheric circulation as an earth feature. There is some kind of pattern (not yet explained) in the distribution of land and water on the surface of the earth. And so on. But just as we accounted for the departures from strict uniformity of distribution in the gas-model by the parameters of the amended equations, so we can deal in this way also with the distributions in the inorganic earth envelopes. What we find, then, is that we can partition the lithosphere, hydrosphere, and atmosphere into cells and then sample these cells at random, with the result that the distribution of materials and energies is approximately the same in all the cells sampled: that is, that in the evolution of the earth conditions approximating to those of greatest probability may be observed. Where we find marked deviations from such conditions we attribute these to the action of physical agencies that are fairly well known to us, and which correspond to the agencies represented by the parameters in the equations that describe the theoretical gas-model.

The picture that the earth-scale, statistical investigation of the original planetary filament, presents to us is that of a physical system that is passing through a series of phases that result from the dissipation of the original energy of the filament. The series is such that each phase is characterized by greater physical stability, greater probability of distribution of the materials and energies, and greater entropy than the preceding phase.

We may now consider the corresponding phases in the "biosphere," that is, the film of organic or living things that exists on, and just below the surface of the dry land, in all depths of the ocean and the fresh-water masses, and in the lower strata of the atmosphere. The view still held by most biologists is that, at some early phase in the evolution of the inorganic earth-envelopes, some materials and energies so interacted as to give rise to living organisms. We do not know what were these conditions in which the first forms of life originated, for they do not appear to have recurred, and it has been impossible to reproduce them experimentally. Present physical conceptions appear to suggest that this origin of living things occurred, of itself, simply as "a fortuitous concourse of atoms," that is, as a highly improbable physical event. This is quite conceivable—just as conceivable as would be the "spontaneous" segregation of, say, a litre volume of a gas into two regions, one of which had a much greater density than the other one. The probability of occurrence of such an event can approximately be evaluated. It is not "impossible," and though its probability is extraordinarily small, that is not an *a priori* reason for refusing to contemplate the possibility of the event. We incline to think of such a primary life-material as similar to the "undifferentiated protoplasm" of the lower organisms. It would be capable of assimilation, for it would assemble the carbon dioxide, water, nitrogeneous substances, etc., that were in its environs in forms similar to itself. It would be capable of reproduction, for small parts detached from the original mass would still possess the power of assimilation. It would tend to be distributed, to an indefinite extent, throughout all adjacent regions of lithosphere and hydrosphere wherein the necessary materials for assimilation were existent. It would be somewhat similar to the substances called catalysts, but we must not labour this analogy when we consider the failure of all attempts to give experimental verification to the speculation. In spite of the enormous difficulties presented, we must consider the possibility of such an "origin of life."

But there has been a process of organic evolution in the course of which the primary forms of life have undergone differentiation. We must distinguish clearly between what we have called the "differentiation" of a volcanic magma and that of the primary living physical systems. The magma changes in such ways that its

chemical constituents fall into the forms of stable silicates, water, carbon dioxide, carbon monoxide, nitrogen, metallic oxides, carbonates, sulphides, etc., and free metals. In present conditions, whatever of these materials can do so are oxidized from the atmosphere. Thus the whole system assumes physical and chemical simplicity and stability, that is, conditions of increased probability with entropy-increase. On the other hand, the primary forms of life have become more complex. They had an original morphology (shape, consistency, colour, etc.), and they had original chemical constitution. But evolution means the origin of novelties both in morphology and chemical state. There has been a continual new formation of species of plants and animals, in the course of which the morphology became progressively more complex. From one original life-material many kinds of life-material have proceeded, for "all flesh is not the same flesh, but there is one kind of flesh of man, another flesh of beasts, another of fishes, and another of birds." Probably there are as many kinds of "protoplasm" as there are species, or particular kinds, of organisms, and there does not appear to be any limit to the species of organisms that may arise during an evolutionary process. Thus the evolution of living things presents to us a picture of a series of phases, each of which is characterized by greater complexity of organization—morphological and chemical —than was the preceding phase. Now we have suggested that the origin of the primary life-material was conceivable as a physical event of great improbability, and it may seem as if we might extend this notion so that each increasing differentiation of the original forms of life were also an increasingly improbable event. It does not seem possible to argue against this speculation, but presently we shall see in what direction it leads us.

It is in the nature of living things that they should reproduce acceleratively, so that they must tend continually to increase the area over which they are distributed. The analogy to this increase in region of distribution in the case of the gas-model is the diffusion of the molecules. If the atmosphere is suddenly loaded by increase of carbon dioxide resulting from combustion, the local concentration is only a transient one for the molecules of CO_2 become uniformly distributed, if only by their own motions, throughout the entire atmosphere. But it is characteristic of races of organisms that migrate that the movements into new habitats are, sooner or later, accompanied by morphological and functional changes. These changes we call "adaptive" ones, since it is often the case that the natural conditions of the new habitat differ from those of the old one, and the morphological and functional changes accompanying the migration "fit" the organisms to the new conditions. Thus aquatic vertebrates respiring by means of gills came, in the course of their evolution, to

inhabit dry land, whereupon the respiratory organs became lungs, which were developments of the piscine air bladder. But in the further evolution of the vertebrates, some of the land-living mammals again migrated into the ocean, whereupon the respiratory organs continued to be lungs. Cold-blooded amphibians evolved into warm-blooded mammals, but the assumption of a marine habitat by some of the terrestrial mammals was not associated with a renewed cold-blooded condition. Many cases of adaptations consequent on change of habitat might be instanced, but it would be just as easy to quote cases of morphological changes accompanying migration that have no adaptive significance. It has, indeed, been the custom in the past to trace some advantage, or disadvantage, to all such morphological changes, and to explain those phenomena in the light of the hypothesis of natural selection, but a candid and critical inquiry into many of these cases will certainly show that the explanations are unconvincing ones. It is true that, in the extreme cases, at least, the physical conditions of the new habitat adopted by a migrant stock may impose limits or confer direction upon the changes associated with the migration; thus the bodies of mammals that have become marine are "stream-lined," and their quadrupedal limbs have become flippers adapted for locomotion in water. But in the much more numerous cases of environmental changes that are less violent than that just mentioned, it may be quite impossible to trace relations of functionality between changes of habitat and morphological changes. There may, indeed, be no such morphological changes (as in the case of the introduction of rabbits into Australia), and on the other hand, when a race continues to inhabit the same region for a very long time, there may still be evolutionary change.

Clearly there is a tendency for every kind of organism continually to enlarge its region of distribution. These migratory movements are restricted by the existence of "barriers," that is, wide or deep oceans, high mountain ranges, deserts, etc., and biologists (who migrate in steamers and railway trains, taxi-cabs, etc.) are inclined to emphasize the effect of natural barriers in minimizing migrations. All animals, either throughout their entire life-periods, or in some phases of the latter, are mobile. Immobile, rooted plants may nevertheless be "dispersed" by their seeds. Accidental circumstances may enable animals to pass barriers, and in the course of geological changes the barriers themselves may, for a time, be removed. There are thus both the tendency and the means for the almost indefinite mixing of the races of organisms inhabiting the ocean (where there are no barriers), or of those inhabiting, say, Africa or Eurasia. And even in the cases of land regions that are separated, as the Americas and the old world, Africa and Madagascar, or Australia and Asia, the opportunities for intermigration of their faunas and floras cer-

tainly existed in the past. Thus the complete "mixed-up-ness" towards which (Willard Gibbs said) all physical systems tend of themselves ought, apparently, to characterize the distribution of organisms over the face of the earth. It does not, as we see, because the migrations of animals and the dispersals of plants are usually associated with morphological changes. On the other hand, the isolation (or prevention, by physical barriers, of migrations and dispersals) leads also to the evolution of new faunas and floras. In respect of the life-envelope, or biosphere, that tendency towards a state of complete "mixed-up-ness" clearly does not exist.

We may now consider the state of the biosphere in the same way as we have considered the state of, say, the hydrosphere, or the classical gas-model: that is, in the way that adherence to strict physical methods—those of thermodynamics and statistical mechanics—obliges us to adopt. We shall take the land fauna and flora of the whole world, and we shall partition the land surface into cells, each of, say, several thousands of square miles in area. We proceed to sample, at random, these cells, one at a time, expecting to find, from purely physical considerations, a condition of distribution of plants and animals that approximates to the state of maximum probability. We remember that, in the physical model, we have to allow for the action of external agencies that set up heterogeneities of distribution; gravity, for instance, leads to the greater density of the gas in the lower part of the gas-container than in the upper part. We seek for analogous agencies in the earth surface which we are studying, and we find them in what are called "climatic" conditions: greater or lesser elevations of the land surface above geoidal level; temperature of the soil and atmosphere; humidity of the atmosphere; turbulence of the atmosphere, etc. We expect that these agencies will lead to heterogeneities. In the gas-model there are precise functional relationships between the values represented by the parameters and the departures from uniformity of distribution in the gas. As some field of force becomes the more intense, so will the distribution of some aspect of the physical system be the more different from that which would have existed in the absence of the field of force. We expect to find in the land fauna and flora of the world a state of most probable distribution—of complete mixed-up-ness qualified only by those physical agencies that we know well and call "climatic factors."

It will be clear from the general considerations outlined above that we do not find such a distribution of plants and animals, and this is the conclusion from a study of the records of the geographical distribution of organisms. We can indicate only very summarily some of these results. (1) Regions that are remote from each other on the earth have very different faunas and floras; nevertheless

(2) the same genera, or even species of organisms, may be found in regions that are far apart. (3) Regions that are relatively near to each other have, in general, the same kinds of organisms; nevertheless (4) regions that are relatively near each other may be very different in respect of their general fauna. Africa and Madagascar, for instance, are biologically very different, but these regions are separated by deep sea; nevertheless, Iceland and Ireland have no snakes, though these regions have been continuous with Great Britain (which has snakes) in very recent geological times. The climate of Iceland differs materially from that of Great Britain, but that of Ireland does not. Again, (5) it would be easy to find regions on the earth that are remote from each other, but have similar climates, and yet have very different plants and animals, or both. And so on. Many such apparently paradoxical results might be quoted. We see that there is only roughly approximate association of climatic factors with biological similarities or dissimilarities (or, perhaps, no association at all). Of course, these paradoxes may be said to be resolved by consideration of the biological principles of adaptive radiations; the effect of barriers in preventing adaptive migrations, or radiations; isolation of stocks; intermixtures and competitions between stocks, etc. But clearly these are just the things that are physically to be explained.

We sample cell after cell of the land biosphere, methodically at random, and we do not find distributions that approximate to uniformity. Rather do we find heterogeneities that are not to be "explained" by the physical treatment of the data. The biosphere thus differs strikingly from the other earth-envelopes, where the distributions approximate to uniformity and the heterogeneities can satisfactorily be explained.

Evolution, in general, may be regarded as a series of changes *that have tendency, or direction,* in some physical system. In "cosmic evolution" the tendency is towards complete mixed-up-ness, energy dissipation, the increasing probability of the system considered, and therefore continual entropy-increase. In organic evolution the tendency is towards the continual appearances of novelties of morphology, of functioning, of behaviour and habitat, that is, towards the appearances of new species. The tendency is not inevitable, for we have the "persistent types" of paleontology, but these are quite exceptional. Regarded from the physical point of view, organic evolution means that a system originally highly improbable becomes always still more improbable. We may attempt to generalize the old conception of entropy, as it has been generalized by the methods of thermodynamics and statistical mechanics, and then extend it to biology. We may, of course, apply the conception to the energetics of the individual organism. Then we find that a system, the fertilized

ovum, say, that is originally physico-chemically and morphologically complex, becomes still more complex with the process of development. Its entropy decreases as the individual grows in mass and reproduces, but at length there occur the catastrophic processes of somatic death, when the body disintegrates so that its parts assume the physical phase of greatest probability. Life, as a whole, the evolving stock, or race, however, passes through phases of increasing improbability, so that the entropy of the continuous world-life (being proportional to the logarithm of the probability), continually decreases.

Thus there are, in planetary history, two processes, each of which we may represent by series of phases occurring simultaneously; $a < b < c <$, etc., being the "inorganic" series exemplified by, say, the history of the lithosphere, hydrosphere, and atmosphere, and $a' > b' > c' >$, etc., being the organic series, exemplified by the evolution of the forms of living things—the biosphere. The probability of c is greater than that of b, and the probability of b is greater than that of a, and so on; and since time flows in the direction of increasing entropy (or increasing probability), c is "later" than b, c later than a, and so on. But the probability of the organic phase b' is *less* than that of b', the probability of b' is less than that of a', and so on, and there is a corresponding progression in the values of the entropies. And since time flows in the direction of increasing entropy (or increasing probability), it would appear that, in some way, c' is "earlier" than b', b' earlier than a', and so on, a result that seems fanciful but which it is not easy to controvert. It is, of course, implicit in Bergson's conception of "duration," as applied to the living organism, or to life as a whole.

THE AQUINATE PROOFS OF THE EXISTENCE OF GOD

V. BURDWOOD EVANS.

I. Common Sense

The proofs offered by St. Thomas of the existence of God suggest a problem. The day is past when the scholasticism of the Middle Ages was scornfully—often ignorantly—dismissed. The intellectual strength of a thinker such as St. Thomas is amply recognized.

Yet outside the world of "neo-thomism" the Aquinate proofs of the existence of God fail to convince contemporary thinkers that God does, in fact and beyond all doubt, exist. St. Thomas could convince thirteenth-century minds, why not those of the twentieth?

We cannot flatter ourselves that we have minds of a calibre superior to that of St. Thomas. We are unwilling to suppose that reality itself has changed; in the nature of the case, if such a God as St. Thomas believes in, ever did exist, He cannot have ceased to exist. If we disregard these solutions of our problem, is another to be found?

I think that the remaining possibility is that the standpoint of *common sense* has changed. (If this suggestion seems too absurd, substitute the phrase "good judgment" for "common sense.") The absurdity, if such it is, becomes less apparent. This possibility is ruled out by the neo-thomists; for them an enlightened but unchanging common sense is the safeguard of sound thinking against the vagaries of philosophical interpretations of scientific discoveries. In this it seems to me they err.

The common sense of a century I take to be the combination of opinion based upon perception and the filtered, often distorted, popular interpretation of contemporary science. It is the considered judgment of the man who is not an expert in the matter of which he is judging. If I am right, the common sense of the twentieth century is very different from that of the thirteenth. That which was obvious in the thirteenth century to the plain man on his way to Mass, even to a young student on a bench at the Sorbonne, is by no means obvious to the plain man on his way to his office or to the first year student in a chemical laboratory. The judgment of a cultivated modern upon a scientific or philosophical theory is not likely to be the same as that of a mediæval scholar.

It is tempting to assert that this change has been brought about

by the amazing development of mathematics and of the natural sciences from the seventeenth century onward, a development which has led us to make our conception of what constitutes *proof* much more rigorous. This may be rash. A maturing conception of proof may have led to the development of science. But we need not pursue this speculation. My point is that common sense, the casual but never entirely ignorant daughter of knowledge, has grown older in the course of six hundred years.

The importance of this fact is that, as the neo-thomists wisely affirm, the criticism supplied by common sense is, for most of us —unwilling as philosophers may be to admit it—the ultimate criticism of philosophies. Our own version of common sense (which varies not only among thinkers from century to century, but, in much less degree, among thinkers of the same century) directs our criticism of our own philosophy and of that of our contemporaries. How often do we not follow a chain of reasoning, nod of approval succeeding nod, only to burst out at the conclusion—"But this is absurd, there is something wrong somewhere!" Do we not take the part of Hylas against the subtleties of Philonous? This happens most often when reading philosophers of some distant century; our suspicious common sense is wide awake, and ready to descry weaknesses in the chain of reasoning as they occur. It is not lulled into a receptive state by the mesmerism of the scientific terminology of its own day against which it dare not rebel, on pain of being termed unscientific—a reproach against which no thinker can raise his head.

Thus it is with us of the twentieth century in our criticism of St. Thomas of the thirteenth, whereas we read such writers as Bertrand Russell, or Whitehead, or Weyl, with the nervous certainty that we had better remain still and absorb, because they know the very latest thing in science. Science has taught us to respect it by its applications to our daily comfort—the plumbing, the telephones, the central heating, and the aeroplanes which the science of St. Thomas's day did not provide.

This gives us a feeling of inferiority in relation to Russell and one of superiority in relation to St. Thomas. We tend to be satisfied with the *Analysis of Mind* and dissatisfied with the Aquinate proofs of the existence of God.

My analysis of the change in the common-sense point of view suggests its psychological character. This is not unjust. It is a psychological change which shows itself in a logical conception of the exigencies of proof; by this new conception we condemn the reasoning of St. Thomas.

The conception of proof underlying that of twentieth-century common sense can be provisionally analysed: Proof is "a demonstra-

tion of the truth of certain propositions."[1] It can be either (1) mathematical and logical, (2) physical, or (3) metaphysical.

(1) The contemporary conception of mathematical proof is that it is tautological.[2] Mathematical propositions and demonstrations are not synthetic, as Kant thought, but analytic. Mathematical propositions are contradictory or non-contradictory, rather than true or false. Russell shows the derivation of mathematics from a few logical propositions, incontrovertible because tautological, but not unfruitful. They may be manipulated to give new and interesting combinations, like chessmen in a game. But because they are of a logical nature, mathematical proofs can never demonstrate existence. They do not deal with the facts of our actual concrete universe. As such, they cannot give us proof of the existence of God, unless by God we are willing to mean merely an ideal system—the whole of pure mathematics. Such a proof would be in its nature tautological; *e.g.*, mathematics being an ideal system which we may if we please call "God," the existence of mathematics implies the existence of God.[3]

St. Thomas's proofs of the existence of God are not mathematically rigorous because they conclude with the assertion of the real existence of a God who is not pure logic, but pure being, transcending the reasoning by which it is affirmed.

(2) Physical proof is of an inductive nature.[4] It asserts the existence of certain physical facts. An hypothesis is suggested, and tried out in the real world by suitable experiment. If the expected event does not occur, the hypothesis is necessarily false. (Denial of consequent implies denial of antecedent.) On the other hand, if the expected event does occur, the hypothesis is *possibly*, but not necessarily, true. (Affirmation of consequent does not imply affirmation of antecedent.) Physical proof can never rise beyond probability to certainty; hence the problem of the meaning of generalization. Russell points out that empirical generalizations have a necessary function in science. "They are the data for more exact laws, and the grounds for believing that they are *usually* true are stronger than the grounds for believing that the more exact laws are *always* true."[5] Physical proof of this type is the only possible "proof" of the existence of a fact, such as God who is pure Being, and we see that such proof *cannot* be logically necessary. Therefore it is never absolutely convincing. The existence of God can never be shown to be more than highly probable, as a hypothesis from which the expected consequents do follow.

[1] For this definition I am indebted to my friend Mr. A. E. Blumberg.
[2] Cf. Russell, Whitehead, Wittgenstein. [3] Cf. the God of Spinoza.
[4] Cf. Einstein, *Geometrie und Erfahrung*, etc., in *Relitivitätstheorie*.
[5] *Analysis of Mind*, p. 96.

Hence the variety of conflicting opinions in modern times (and all times) about the existence of God. We have become increasingly dissatisfied with the world as evidence of a God of the kind which Christians alike of the thirteenth and of the twentieth century do on the whole consider "very God." That this is so is shown by the discredit into which the argument from design has fallen since the eighteenth century when it was approved by the most incisive intellects.

Our minds can now be satisfied with nothing less than the type of proof with which mathematics and physics have acquainted us. We are inclined to ask Kant's three questions and to answer, not quite as he answered:—

Pure mathematics is possible. It is a system which is neither true nor false, but logically consistent. Its proofs, or demonstrations of the propositions which it contains, are of an analytical or tautological nature. It makes no assertions whatsoever about the existence of facts corresponding to some or all of its propositions.[1]

Pure physics is possible. It consists in the erection of hypotheses suggested by experience, in "explanation" of that experience. Such hypotheses are tested by experience, and if consistent with what seems peculiarly relevant to it, and with as much experience as we are aware of, they are accepted as being "physically true." This physical truth has not the absolute certainty of mathematical demonstration, but it may attain to an enormously high degree of probability.

Pure metaphysics, if it is taken to imply a kind of reasoning which is neither that of pure mathematics nor of physics, is not possible. For what other kind of reasoning can there be? And the twentieth-century thinker often doubts whether mathematical or physical science can be concerned with the "metaphysical" object, God.

Yet St. Thomas claimed to demonstrate the existence of God by the light of natural reason, unaided by revelation. He was able to do this because (contrary to popular opinion) he had a faith in the powers of reason which we have lost. He had no doubt that there was only one coherent system of reasoning which corresponded to the system of the actual world. St. Thomas certainly did not spin philosophical cobwebs out of his own inner consciousness as Hegel has also been supposed to do, although there is perhaps a difference of opinion between St. Thomas and us as to how much we should know about things—*e.g.* angels—before we begin talking about them with certainty. St. Thomas takes his stand upon the world of sensible experience—we have only to remember the oft-quoted maxim, *nihil in intellectu quod non prius in sensu.* Nevertheless, this empirical

[1] Cf. the pure rationality of mathematics, the pure empiricism of physics, and the mixed (therefore empirical) method of history.

starting-point of human knowledge is not essential to knowledge as such, but a weakness of human reason. It is the pure intellect which, even in this world, gives knowledge of real being. Our intelligence constructs the system of the universe. St. Thomas has what may seem to us an overweening confidence in the necessary truth of a rational system.

This perhaps is due to the Platonic elements in his philosophy, in especial to the impression left by Plato's belief in mathematics. Mathematics is *par excellence* the rational system, or was, until it became many systems. While only one such system, which we may call Euclidean, was known, and while this system seemed to apply accurately to the empirical world, it was not too fantastic for a reasonable man to suppose that Divine reason created a pattern which was copied by the actual world, and that human reason by aid of its sensible connection with the actual world, rose by means of a pure intellect to knowledge of that Divine pattern. The logic of Aristotle was a skeleton of contemporary science, and this skeleton of science was formed of the bones of the world of facts in what seemed to him its natural articulation. This confidence in the applicability of reason led to the affirmation of certain *a priori* maxims, such as that the cause must be at least as great as the effect. In the thirteenth century these maxims seemed to be perfectly reasonable, and indeed to some minds seem so still.

On the whole, however, we in the twentieth century are agreed that such *a priori* maxims can be selected so as to form rational logical or mathematical systems, or internally consistent wholes, often in contradiction with one another. These wholes cannot all be applied to the world of facts; possibly none of them can be exactly applied; but so far as any one of them applies, we find this out by experiment, the creation of a system of physics.

The twentieth century has built for itself a world-view out of the labours of its mathematicians and physicists.[1] Not, however, by their labours alone. Perhaps the nature of mathematics would not have been so clear even to the specialist, and it could not have penetrated below the level of average culture, had it not been for the work of biologists in particular and of historians in general, which has contributed to the common philosophy, or to what I have earlier called "common sense."

Because Aristotle has been called a biologist, and Herodotus an historian, it seems absurd to speak of biology and history as new forms of knowledge. Nevertheless, they became fruitful really only in the nineteenth century, when biology and history alike grew

[1] Cf. E. A. Burtt, *The Metaphysics of Sir Isaac Newton*, p. 13. B. Russell, *Introduction à la philosophie mathématique*, p. 8. A. N. Whitehead, *Science and the Modern World*, chap. iii, p. 67.

self-critical, ridding themselves of prejudice and fable. And in spite of being, actually and necessarily, full of theories or hypotheses, they claimed to give knowledge of *facts* as opposed to theories. *E.g.*, in spite of the tradition that God created a certain number of fixed species, we can show you, they said, the evolution of species by natural means. . . . There was often a new theory in opposition to the old, but the influence of biology was in the direction in which it claimed to be. It drew attention to the facts of the natural world; facts are stubborn, and must be recognized in spite of theories; facts show that the greater may come from the less (or so it is believed), in spite of the rational "law" of non-contradiction. Thinkers became impatient of metaphysics.[1] Biology is perhaps "natural history"; geology could well be described in this way; and social, literary, and political history similarly filled men's minds with facts

In "facts" there seemed to be the real stuff of the world; the arrangements of facts in orderly or "rational" fashion were provisional, dubious, not reliable. As time went on, the very "facts" which had been so eagerly acclaimed as reality itself in the enthusiastic nineteenth century—*e.g.* by Comte and by Spencer—were themselves questioned more scrupulously. The time was ripe for such a criticism of the reality of the fact as may be found in the work of F. H. Bradley.

Bradley's work is, however, little known except by specialists in philosophy, and the attitude of mind which he expresses, that of the idealistic agnostic, is of such precarious balance that it cannot often occur. It is certainly not the attitude of "common sense," which is still positivist, still believes in facts, and is suspicious of theories. It does not ask whether the physicist's appeal to the natural world for confirmation of his hypotheses is convincing or even possible. For common sense as for the physicist, there are *facts* of perception. If theories cannot be tested by application to such facts, they are moonshine. And for the common sense of the twentieth century, what were facts for St. Thomas are no longer facts, and therefore in the twentieth century the Aquinate proofs of the existence of God are moonshine.

What is the philosophical justification for this attitude? It is partially justified by its history—*i.e.* by its dependence on the new conceptions of what constitutes proof, conceptions introduced by the development of physics, mathematics, and history. It cannot be wholly justified unless those conceptions themselves are subjected to philosophical scrutiny. We should then have to inquire most especially into the nature of a fact, into the relation between thought and things or mind and matter, in short, into the meaning and implications of science, no small problem, and one beyond the scope of this essay.

[1] Cf. Whitehead, *op. cit.*, chap. i, p. 3.

II. The Five Ways

In order to arrive at a knowledge of St. Thomas's proofs of the existence of God, it is natural to turn to the *Summa contra Gentiles*, which was written to convert infidels by the power of pure philosophy alone. But for the sake of brevity an examination of this earlier statement of the proofs must be omitted, since it is developed with as little dependence upon the knowledge of revelation in the later *Summa Theologica.*

St. Thomas first inquires whether the existence of God is demonstrable—is it not rather an article of faith? How demonstrate His existence, when we do not know *what* He is? How know Him through His effects when these are admittedly not proportionate to Him?

That the existence of God can be only the object of faith is the view of those philosophers who affirm at the same time that all human knowledge is sense knowledge, and that God is pure spirit. Against them, St. Thomas maintains the possibility of *knowing* the existence of God, because the human intellect has as its proper object the spiritual, although in so far as human, it is based upon sense-perception. This basis of sense-perception forces St. Thomas to reject all *a priori* proofs of the Divine existence.

There are, he asserts, two kinds of demonstration, (1) by means of the cause, (2) by means of the effect; the second only is available to us in the case of knowledge of God. Such rational knowledge is the preamble to faith; you must know what a name means, but not necessarily its full nature, and, finally, you may show the necessary existence of a cause, although again its full nature may remain unknown.[1]

St. Thomas is also aware of certain other objections to the supposed existence of God. How is the existence of evil compatible with that of *infinite* Good?[2] He replies that God does not make evil—He permits it, and from it draws out good. This argument rests on a distinction which is questionable, and is unsatisfactory when considered together with the argument from design.

St. Thomas also refers to the difficulty about superfluity of causes—is there a real need for a cause which is Divine? He is convinced that there is, since human will and reason seem to him too uncertain to be the ultimate causes of the world, and other suggested causes would have seemed to him even less adequate.

An analysis of the relation of cause and effect may lead to one of two possible extremes: (1) according to one the relationship is eternal and necessary; (2) according to the other it is merely contingent.

Obviously the one useful to St. Thomas's argument is the first. Only if the relationship between cause and effect is necessary,

[1] *Sum. Theol.*, I. II. 2. [2] *Ibid.*, I. II. 3.

universal, and reciprocal, can any conclusion as to the nature of the cause be drawn from the known nature of the effect. Modern scientific procedure and philosophic criticism, however, have inclined more and more to the second gloss of the terms "cause" and "effect." Philosophers associate it with Hume. Russell writes:—

"The traditional conception of cause and effect is one which modern science shows to be fundamentally erroneous, and requiring to be replaced by a quite different notion, that of *laws of change*. . . . As a matter of fact, such sequences as were sought by believers in the traditional form of causation have not so far been found in nature."[1]

And it is Russell who affirms, in a way which seems to have peculiar force against St. Thomas's argument for the existence of God:—

"As we have just seen, the notion of 'cause' is not so reliable as to allow us to infer the existence of something that by its very nature can never be observed."[2]

Even if the first view of cause and effect is maintained, there is immense difficulty in conceiving how such a relationship can hold between the world and God. How establish the existence of a relationship when one of the terms is *never* experienced?

Again, such a relationship is reciprocal if it is necessary. But this means that just as the world supposedly cannot exist without God, so God cannot exist without the world; and however well this may suit some philosophy, it does not suit Christian theology, for ultimately it means the identity of the world and God.

This doubt of the validity of the causal argument lies at the base of the modern rejection of St. Thomas's proofs. The "contingent" without the "necessary," or perhaps we should say the necessity of the contingent, has become thinkable to the twentieth-century mind.

We may now analyse the five proofs:—

(1) The senses observe something moving;[3] and everything which moves must be moved by something else. That which is moved must be in potency, and that which moves in act. To move something is to bring it from potency into act. A thing cannot be in act and in potency at the same time and in the same respect, it cannot move itself. Now if that which moves something is itself moved, it must be moved by something else, and that by something else again. But we cannot proceed to infinity, because without a first mover there would not be a second, and consequently we should not perceive

[1] *Analysis of Mind*, pp. 93–4. [2] *Ibid.*, p. 98.

[3] *Sum. Theol.*, I. II. 3, and cf. *Sum. C. Gen.*, XIII. The whole of St. Thomas's argument should be read.

any movement: we must suppose a first mover by which we all understand God.

In other words, St. Thomas believed an external cause necessary to start motion—that motion which we now perceive. He dismissed the possibility of an infinite series of movements, because an *actual* infinite was to him inconceivable. His common sense told him that a series must have a first term, but this conclusion is denied by modern mathematics,[1] and St. Thomas's proof fails with this denial.

Likewise St. Thomas's conviction that, if at one time nothing existed, nothing ever could exist no longer holds for modern believers in the fact of "becoming." It seems possible to us that, even if movement occurred accidentally, it might (as it is) be occurring now. Therefore the first movement in the world might be described as *self-movement*, which seems to St. Thomas impossible. The modern conceptions of force, energy, radio-activity, offer us a problem of their own, but destroy the problem of St. Thomas—that of accounting for movement externally. As E. A. Burtt says, "Instead of treating things in terms of substance, accident, and causality, essence and idea, matter and form, potentiality and actuality, we now treat them in terms of forces, motions and laws, change of mass in space and time, and the like."[2]

We may conclude that it was reasonable for St. Thomas to accept the hypothesis of a Prime Mover, and it has become reasonable for us to reject it. But even leaving St. Thomas's argument as it stands, we might have asked, Why do we identify this Prime Mover with God? The answer is that the Prime Mover must be in a sense the source of our being (since we move); and that source is supposed to be "God." Characteristics of goodness, etc., are ascribed to the God from reasons other than those which identify him with the Prime Mover. Although God is not shown necessarily *not* to exist if a Prime Mover is superfluous, a very important piece of positive evidence *for* His existence has been removed as far as the modern mind is concerned.

(2) The second proof maintains the necessity of a first cause. A thing cannot be its own efficient cause, *i.e.* bring itself into existence; nor can there be an infinite number of efficient causes—because always the last terms must be caused through the middle terms of a series, and the middle by the first; without the first term there can be no middle and therefore no end. But something does in fact exist: there must be a first efficient cause which we call God.

Here again St. Thomas, arguing from what he had before his eyes, was making a logical inference as to the need of an efficient

[1] "There is certainly no logical reason *against* infinite collections." Russell, *Int. Math. Phil.*, p. 76.

[2] *Metaphysics of Sir Isaac Newton*, p. 13.

cause. We, however, think that things, or rather motions, can exist without being brought into existence; for whereas we can observe motion, we cannot observe the *thing* nor see it being brought into being, and we no longer demand an explanation for its existence. To St. Thomas the world seemed too disordered to be able to account for its own existence; but to us, since the world is ordered enough to exist now, it seems possible that it should have come into existence, or have always been in existence. We substitute the world itself for St. Thomas's First Cause.

(3) The third proof is from the possible, *i.e.* the contingent, to the necessary. We find among actual things some which might conceivably not exist, *e.g.* all those things which are generated and suffer corruption. But all such things cannot always *be*, for if they may possibly not be, then at some time they are not. But if there were nothing, then nothing could ever begin to be, and so nothing would exist now, which is obviously false. Therefore it cannot be true that all things are *merely* possible—something must be necessary, and ultimately something must be necessary of itself, such that it can be the cause of other things being necessary, and *a fortiori* of their being possible. This we call God.

This argument again raises a question already discussed—that of the meaning of cause and effect, and the possibility of something coming from nothing. Does possibility imply necessity? Does potentiality imply act?

St. Thomas's affirmative answer rests on the conviction that the cause is always at least as great as the effect, together with the postulate that in an infinite series all possibilities are sometimes realized. We have already seen that according to modern philosophers and mathematicians his confidence was ill-founded.[1] Change, implying real increase, is actual, and possibilities as such have no claim to existence.

(4) The fourth way to recognize the existence of God is from the fact of the existence of degrees of being.[2] We see things more and less good, true, noble, etc. But an approximation implies a standard, *e.g.* the hotter is that which approaches most nearly to the greatest heat. There must therefore be something which is truest, best, and greatest being. And the greatest in any scale of being is the cause of the existence of the being lower in the scale, as the hottest is the cause of heat in the less hot. Therefore there is something which is the cause of the being, goodness, and perfection of all things, and this we call God.

This argument would perhaps only be valid if St. Thomas accepted the ontological argument which he rejects.[3] Because low

[1] *Sum. Theol.*, I, II. 3. [2] *Ibid.*

[3] Cf. *Ibid.*, I. II. 1, and Russell, *Int. Math. Phil.*, p. 204.

degrees of being exist, it does not follow that the highest *existing* degree of being is a perfect being, although we may have a concept of such a perfect being, under which we range the concepts of those degrees of being with which we meet in the natural world.

Nor is it clear to us that the highest existing degree of heat *causes* all other degrees of heat. They may all exist fortuitously and independently of each other. St. Thomas did not think this possible in accord with his general view that the contingent implies the necessary, and that all things have ultimately a necessary efficient cause. This argument has to be understood in connection with others which we have already criticized.

(5) The fifth proof, from the government of things, has been called the argument from design. We see that certain natural bodies which lack knowledge, nevertheless act according to an end, that is, in the way which results in the greatest good. This cannot happen by accident. Now the unintelligent does not tend towards an end unless it is directed by an intelligence, *e.g.* as the arrow by the archer; there must be something intelligent which orders natural beings to their end, and this we call God.

This argument once convinced almost all minds; even as late as the eighteenth century it was still part of Natural Theology. The nineteenth century, through the teaching of evolution or transformism, saw the argument weaken its hold of the modern mind.

Natural unintelligent bodies, *e.g.* fish, plants, animals, act towards an end because if they did not they would not exist at all. Therefore, at the cost of enormous waste (as it appears to us), a number of creatures, *apparently* acting under intelligent direction, do survive. Certain other natural bodies, *e.g.* those which form the environment of the animals, likewise appear to serve an end, merely because the animals have adapted themselves to it, or (so far as they are intelligent) have adapted it to themselves. Consequently the world, although it is apparently *on the whole* well managed (but by no means perfectly so), does not show that necessarily an intelligent, directing Providence exists. The fact that the world is not entirely perfect is one of the minor weaknesses of the argument. For as adaptation to end is supposed to show the perfection of God, so might failure seem to show the imperfection of the source of being. This corollary of the argument was avoided only by the erection of subsidiary hypotheses, *e.g.* as to the free will and wickedness of man —and the devil.

In conclusion, we may say that the root of the Aquinate proofs of the existence of God is the surety that "everything movable and fallible must be deduced from some first immobile principle which is necessary of itself"—"*oportet autem omnia mobilia, et deficere*

possibilia, reduci in aliquod primum principium immobile, et per se necessarium, sicut ostensum est."[1]

It is just this which the twentieth-century mind has learnt to question. Or rather, it has learnt to regard it in a new way. Its science has ceased to look for eternal principles up in heaven, for an ultimate cause of the changing world in an unchanging eternal God. And this because it is finding its eternal principles in the changing world itself. The natural world is at once less and more ordered than it appeared to the thirteenth-century mind. It seems to us less well adapted as the mere stage and scenery of the life of a religious being, and so far there is less order in it; but also it seems to us to show regular sequences in a way which the philosopher of the Middle Ages thought held only in heaven, and so far there is more order in it, for it is nothing but ordered movement.[2]

Our principle of order is no longer a transcendent God, but an immanent system of applied mathematical equations. Consequently we are not satisfied with the possibility of *any* proof of the existence of a transcendent God, derived from the implications of the existence of the natural world. We cannot say that the God of St. Thomas does not exist. His existence remains possible. But the kind of evidence which St. Thomas offers for it is no longer convincing. To this extent, philosophy always depends on contemporary science—it must use the best available knowledge of the time. If a later development of science overthrow former science, or brings new light to dispel old darkness, it is apt to destroy an older philosophy by making certain arguments and hypotheses untenable.

St. Thomas reasoned as we reason now. There is no need to defend the clarity of his intellect. But it was not possible for him, even by avoiding what he felt to be shaky assumptions of contemporary science (he tested science by his good judgment), to escape dependence upon that science in general, nor to avoid having his judgment affected thereby. Similarly, we cannot avoid dependence upon what we believe to be knowledge. We cannot while we philosophize turn away from the truth, even when it apparently destroys what is valuable. We can no longer think what St. Thomas thought, for the evidence has changed, the object of thought is no longer the same. Contemporary science provides philosophy with no material for proof of the existence of God.[3]

[1] *Sum. Theol.*, I. II. 3.

[2] E. A. Burtt, *Metaphysics of Sir Isaac Newton*: "Science is the exact mathematical formulation of the processes of the natural world," p. 223. Note: mathematical, therefore not *causal* sequences.

[3] Cf., however, Whitehead's "Principle of Concretion" in *Science and the Modern World*, and Alexander's *Space, Time and Deity*.

THE PRESENT POSITION IN PSYCHOLOGY[1]

Professor JAMES DREVER

Almost exactly a quarter of a century ago—in the year 1906— the George Combe Department of Psychology was established in this University, thanks to the farsightedness of Professor Pringle-Pattinson, who has, to our regret, now gone from among us, and Professor Sir Edward Sharpey Schafer, who is happily with us still, and to the generosity of the George Combe Trustees. In his inaugural lecture, delivered in the old Natural History classroom, my predecessor, Dr. W. G. Smith, discussed the scope and relations of modern psychology. He emphasized the fact that modern psychology had extended its boundaries far beyond the psychology taught in the past in this and other universities, that it now included child psychology, animal psychology, abnormal psychology, physiological psychology, and experimental psychology, all developed studies, and that its growth in importance had been commensurate with its expansion.

During the quarter of a century that has since elapsed the expansion of psychology has been, if possible, even more striking. The number of psychologists has increased tenfold, the practical applications of psychology have grown and extended in the most astonishing way, and popular interest in the science has been awakened in a way and to an extent quite unknown twenty-five years ago. It has seemed to me, therefore, that a review of the present position in psychology may not be without value, and I have accordingly chosen for the subject of my inaugural lecture very much the same subject as my predecessor chose.

One of the oldest of studies, but one of the youngest of sciences, psychology can hardly be said to have a history of its own until towards the end of the nineteenth century. As a definite science, professing the general aims, and acknowledging the general principles and standards of the physical and natural sciences, its beginnings may most appropriately be dated from the formal establishment of Wundt's psychological laboratory at Leipzig in 1879. Of course the study of psychology did not begin in 1879. Before this time for more than two thousand years psychology had been studied and taught by philosophers, but as an integral part of philosophy. The year 1879 marks the beginnings of the breakaway of psychology from philosophy, the first attempt of psychology to stand on its own feet

[1] Inaugural Lecture to the Chair of Psychology at the University of Edinburgh.

and to work out its own destiny. There was, and is, no quarrel between psychology and philosophy. The debt which psychology owes to philosophy is enormous. But psychology, like the other sciences, had to leave the parental roof when it was sufficiently grown-up to do so. This step was longer delayed than in the case of other sciences, because psychology had to await the development of more fundamental sciences like physics and physiology. Only when the laboratory methods in these sciences had reached a certain degree of refinement could they be utilized and adapted for the purposes of the psychologist. However dissatisfied he might be with the methods and scientific standards of the older philosophical psychology, the psychologist had nothing better available until the physicist and the physiologist placed at his disposal methods of investigation which were rigorous and exact, and at the same time set before him an ideal and a model of scientific research which he could follow.

The course of events quickly showed that the time was ripe for the development of an independent psychology. Psychological laboratories and departments sprang up everywhere. In America alone, during the next two decades, no less than thirty psychological departments came into existence, the first being established by Stanley Hall at Johns Hopkins in 1883. Elsewhere laboratories came into existence at Berlin, Bonn, Göttingen, Cambridge, Copenhagen—all in the 80's—and many other places. The first professorship of psychology as such was established at the University of Pennsylvania in 1888, and here Cattell, the first professor, gave the first course in experimental psychology ever offered to students, previous work in experimental psychology having been limited to research. Journals were founded devoted to the new science and multiplied with great rapidity. The first International Congress of Psychology met at Paris in 1889. It was presided over by Ribot in the absence of Charcot, the elected president.

Experimental psychology—'new' psychology as it was called at first—represents, however, only one direction which the development of a scientific psychology took. To understand the other developments it is necessary for us to look for a moment at the various influences under which the development of modern psychology has taken place. As far as experimental psychology is concerned, I have already suggested that the main influences affecting its development have been those of physics and physiology. The influence of physiology has been the more direct and important, and the psychological laboratory may be said to have grown out of the physiological laboratory. Many representatives indeed of the older psychology maintained that the new psychology was not psychology at all, but merely physiology, and to some extent this view was justified

by the nature and scope of the earlier experimental work. Over and above this influence on the new psychology, physiology has always exerted, and continues to exert, an influence on the science as a whole. There must always be close affinity, and consequent reciprocity of influence between the two sciences. Perhaps the influence of physiology was greatest during the nineteenth century, but it is still in evidence in the work of Pavlov and his colleagues, as in the work of Watson, Lashley, and many American behaviourists in our own times.

Another influence, in the long run almost as potent as that of physiology, has been the influence of general biology, and more particularly of the theory of evolution. To some extent this influence represents an independent origin of modern experimental psychology in the work of Galton. The vast development of mental testing derives mainly, though not entirely, from this source. The scarcely less important development of animal psychology is evidence of the close contact established with the rapidly developing zoology. Thus many problems unknown to the older psychology, and unknown to physiology, began to attract the attention of the psychologist.

A third notable influence was that of psychopathology—or rather what we now call psychiatry. This influence began with the study of hypnotic phenomena, and that in turn with the work of Mesmer towards the end of the eighteenth century. After the dust of the controversies over Mesmer had settled down, the two rival schools of psychopathology in France—those of Paris and Nancy—both made very significant contributions to our knowledge of abnormal mental phenomena. Particularly important contributions were made by Charcot, and more recently by Janet. Since Freud was a pupil of Charcot's the psychoanalysis of to-day may be said to be directly descended from this movement in psychopathology. Probably this influence has had the largest share in that development of practical applications of psychology which is so characteristic of the present. Kraepelin at any rate began to apply the methods and results of experimental psychology almost from the beginning, and psychoanalysis is of course practical rather than scientific in its outlook. The practical outlook, however, was extended far beyond the bounds of abnormal psychology. A very good illustration of the kind of thing that happened is the case of the Binet-Simon scale of mental tests. Binet's object in the first instance was merely to get a series of simple tests by means of which mental deficiency in the schools of Paris might be diagnosed. After he had devised his 1905 series of tests with this aim in view, he realized the possibility of grading the mentality of all children—normal as well as subnormal—by means of such tests, and the 1908 series was devised with this wider purpose. But mental tests had already been advo-

cated and used by Galton, Cattell, and others in the study of individual differences from a scientific, rather than a practical, point of view. The two movements coalesced to give us the great development of mental testing for scientific, diagnostic, educational, and vocational purposes, with which we are familiar at the present time.

We thus see that three main streams of scientific progress during the nineteenth century have joined to produce the psychology of to-day—physiology, general biology, and psychiatry. Perhaps it would be more accurate to say that the relatively narrow stream of psychology, if we may speak figuratively, as it had flowed down through the centuries since Aristotle, was joined by three great tributaries towards the end of the nineteenth century, with the result that the whole character of the stream—now a broad river—has been changed.

The actual changes brought about are best seen and appreciated when we compare the nature and scope of psychology as understood by the philosophical psychologist of, say, 1890, and as understood by the scientific psychologist of to-day respectively. For the older psychologists psychology was the science which studied the phenomena of consciousness or of experience by the method of inner observation known as introspection. The early experimentalists in theory accepted wholeheartedly this view of the nature of the science. Wundt himself explicitly stated that the object of the psychological experiment was simply to supply the appropriate conditions for more accurate, reliable, and detailed introspection. Before very long, however, the experimentalists found themselves interested, as for example in the study of reaction time, in the performance rather than the experience of their subjects, and such introspections as were obtained were used to throw light on the performance. With the development of mental testing and animal psychology all pretence regarding the employment of introspection was laid aside. It became obvious that research was no longer being directed towards the study of the phenomena of consciousness. The dilemma therefore appeared that if psychology was the study of the phenomena of consciousness, then all this work was not psychology at all; or if this work was psychology, then psychology could no longer be adequately described as the study of the phenomena of consciousness.

The development arising out of psychopathology and psychiatry led to a similar dilemma. The workers in this field during the last half-century have been avowedly more interested in phenomena of the unconscious than in the phenomena of consciousness. Again we have the dilemma. Either this study of the phenomena of the unconscious is not psychology, or psychology is not correctly described as the study of the phenomena of consciousness.

The only possible outcome of this situation was the abandonment

of the old definition of psychology in terms of the study of the phenomena of consciousness, and the adoption in some form or other of a definition in terms of the behaviour of the living organism and the interrelation between this and the mental life. Hence a definition of the nature and scope of the science that would be accepted by, and cover most adequately the activities of, the majority of psychologists at the present time would have to run somewhat as follows: psychology is the science which seeks to understand the behaviour of the living organism in terms of the inner life of thought and feeling. Even such a definition might well prove too narrow in the long run.

This widening of the scope of the science has brought in its train many important changes. Arm-chair psychology is a thing of the past. Scientific observation, careful laboratory experiment, rigorous mathematical treatment of data, have come to play the same part in psychology as in the other natural sciences. Problems which at one time seemed of fundamental importance have ceased to interest the psychologist as a psychologist, however much they may still interest him as a philosopher, and new problems unknown to the older study have loomed up on his horizon. In simple fact the text-books of twenty years ago are to-day largely out of date, because they no longer represent the point of view and the scope of the science.

It might be objected here, that while in a sense all this may be true, yet such is the conflict of opinion within psychology itself at the present time that there is in fact no body of psychological doctrine which all psychologists accept, that there is no science of psychology, but rather many psychologies. In the remainder of what I have to say, I should like to try to meet this objection by giving a brief account of the different schools of psychology and pointing out the significance of the fact that there are these different schools.

First of all let me state quite definitely that it is entirely a mistake to say that there is no body of psychological doctrine accepted by all psychologists. There is a great mass of established psychological fact. Research in psychology during the last thirty or forty years has been very fruitful, and the results of such research no psychologist dreams for a moment of refusing to accept. Recent philosophical writers, as for example Driesch, have shown themselves disposed to speak rather pointedly of the "present crisis in psychology." There is no present crisis in psychology, but rather every sign of normal, if rapid, development. Other sciences have, or have had, their controversies, as between Darwinians and Lamarckians in biology, or in the past between Neptunists and Vulcanists, or 'catastrophists' and 'uniformitarians' in geology. Let it be granted that there are several

schools of psychology, each with its own more or less characteristic view of what psychology is, and how it should be carrying out its task. Most of our recognized sciences have in their youth passed through essentially similar phases. Moreover the great majority of psychologists are not extreme adherents of any school, but accept with gratitude every new fact contributed to the science, and every new law established, no matter what the point of view of the discoverer. Besides, when close inquiry is made, it will be found that most of the controversies are in fact inherited from philosophy, and are essentially philosophical rather than psychological in character. In any case, to speak figuratively, they are little more than eddies in the stream.

Bearing these facts in mind let us consider the chief schools of the present day. Woodworth in a recent book has specified five main schools of contemporary psychology. The number may with advantage be reduced to four. These may be designated:—

1. The 'impressionist' school, corresponding to what Woodworth calls 'existentialism.'
2. Behaviourism.
3. Configurationism, or the Gestalt school.
4. The 'motivist' school, including Woodworth's 'purposivism' together with psychoanalysis.

The first of these schools, the 'impressionists'—Woodworth's 'existentialists'—may be regarded as representing most closely the older psychology. They still look on consciousness or experience as the proper field of study of the psychologist, and introspection under experimental conditions as his characteristic method. Their general procedure is to apply a stimulus to the subject or observer, and obtain a record of the impression he receives. This procedure was first used by the physiologist in his investigation of the functions of the sense-organs. As refined and elaborated by the psychologists of this school it has thrown valuable light, not only on our sensory experience, but also on feeling, volition, memory, and the higher thought processes. The chief leader of this school during recent years has been Titchener, and since his death several of his pupils have carried on the tradition. If these workers choose to cultivate intensively this field of research, who is there to say them nay? The bigotry, formerly characteristic of their attitude to workers in other fields, has now practically disappeared.

The second school, behaviourism, in the extreme form usually associated with the name of Watson, first made its presence felt about 1912, as a reaction against the 'impressionist' school. Its keynote was the necessity of objective methods in psychology as in the other natural sciences. The violently aggressive tone adopted

by the leaders of the school is easily explained. Objective methods were already being widely used in psychological experiment. The attitude of the orthodox introspectionist psychologist towards this kind of work was still more or less hostile, and sometimes even contemptuous. Animal psychology in particular was very lightly esteemed and spoken of by Titchener and other representatives of the 'impressionist' psychology. Their attitude was naturally resented by the animal psychologists, who were working with marked success on problems of animal learning and animal instinct. The latter retorted by saying that they were the only group of psychologists doing scientific work at all, and that, if human psychologists would give up introspection altogether, and devote themselves to the objective study of behaviour, there would be some hope of a real science of psychology. Not content with this retort, the extremists claimed that psychology had no use whatever for consciousness, and refused to employ any term suggestive of the inner life. At first the movement was practically confined to America, and was there what we might call a 'youth movement.' When Pavlov's work in Russia became known, however, it was hailed with enthusiasm by the Watson behaviourists, the Russian and American movements combined, and the influence of behaviourism became widespread.

Regarded dispassionately, behaviourism is seen to supplement 'impressionism,' and to compensate for its onesidedness in one direction by an equal onesidedness in the opposite direction. Its influence on the actual work of psychologists has been relatively slight. There has been merely an extension of the field of psychological research, as, for example, in the work of Lashley on the learning of animals after extirpation of parts of the cortex.

The third school, Gestalt psychology or configurationism, has been a German, as behaviourism was mainly an American, development. It represents a reaction against both 'impressionism' and behaviourism. The main objection urged against both is that the analysis of experience or of behaviour into elements is essentially unsound. Neither experience nor behaviour can rightly be regarded as a mosaic, the one of elementary sensations, the other of elementary responses or reflexes. As early as 1890 von Ehrenfels called attention to the importance in our experience of what he called *Gestaltqualitäten*, that is, qualities possessed by wholes as such, which were not possessed by the parts of which the wholes were built up. For example, a melody and its qualities do not seem to reside in any sense in the individual notes. Or to take simpler cases, such qualities as 'regular,' 'complicated,' 'slender,' 'graceful,' and the like are obviously qualities belonging to wholes, and not to the parts of which the wholes are composed.

The actual experimental work of the Gestalt psychologists began

with Wertheimer's study of the phenomena of motion-pictures which had been neglected since the time of Plateau. In this case what is presented to the eye is a series of still pictures separated by short intervals of darkness. What is actually seen is a single moving picture. From these experiments Wertheimer went on to study spontaneous grouping in sensory fields. The conclusion drawn from all such phenomena by Gestalt psychologists is that our sensory experience is always organized, that it always has a form or configuration. It is a whole, not a mosaic. Stimulation as such is completely unorganized, but sensory experience never. Moreover this organization is an original sensory fact, and is to be regarded as a characteristic achievement of the nervous system.

It is impossible here to follow out the experimental work and the conclusions of the Gestalt psychologists. Let it suffice to say that they find similar organization in all experience and all behaviour at all levels, so that according to their view analysis into elements falsifies the facts. One other concept, emphasized by the Gestalt school ought to be mentioned, since it is undoubtedly destined to play a considerable part in the systematic psychology of the future. That is the concept of 'insight.' This concept has been rather strangely misinterpreted in a purely subjective sense by many psychologists. When the Gestalt psychologists say that 'insight' is present in varying degrees at all levels, they simply mean that the behaviour of an organism is relevant to a certain situation, and is experienced as relevant. A simple illustration from Kohler's *Mentality of Apes* will make the point clear. He brought a chimpanzee into a room with a window looking out on a courtyard and a door in the corner of the room away from the window, opening into a passage leading to the courtyard. He opened the window and threw out into the courtyard a banana. The ape immediately turned and dashed out through the door and passage into the courtyard. Objectively the movement of the ape was a single movement relevant to the situation. This is the objective aspect of 'insight.' Subjectively there was clearly what may be described as grasp of the situation by the ape. This is the subjective aspect of 'insight.'

The reply of the Gestalt school to the crudities of extreme behaviourists like Pavlov is quite convincing, and their experimental evidence conclusive, and it is interesting to note the almost complete agreement between their findings and the findings arrived at by a behaviourist like Lashley working along entirely different lines. Their contribution to modern psychology has taken the form of recalling the attention of the experimentalist to old and fundamental problems of perception and of learning, while at the same time they have enriched the laboratory with many new experiments.

There remains the 'motivist' school. The representatives of this

school are in a somewhat different category from the others. They are not to any great extent experimentalists. In many cases they are not primarily psychologists at all, but have developed a psychology in order to get a theoretical basis either for the practice of psychotherapy or for the social sciences. Constituting by no means a homogeneous group they have little in common, except their insistence on the importance of emotional factors in the mental life. As belonging to this school one would name McDougall, Freud, Jung, and those who follow them more or less closely. The school might be divided into two groups—the 'instinct' group and the psychoanalytic group —but these two groups are not very sharply marked off from one another. Almost all the representatives of the school are system builders, and while the facts upon which the systems are built must be accepted, the systems themselves can only be regarded as provisional. This is particularly the case with respect to the systems of the psychoanalysts, using that term in a wide sense. In no way can psychoanalytic theory be considered a final psychology. As I have said, it is merely provisional, though Freud himself seems to be the only one of the school to recognize the fact. So far as psychoanalytic or 'instinct' theories go beyond the psychological field, as they frequently do, the psychologist is not bound to take issue with them at all. At the same time it must be remembered that psychologists of this 'motivist' school have opened up a new and vastly important field for psychological investigation. The experimental exploration of this field is only in its initial stages, but a beginning has been made, and results valuable alike for psychology, for medicine, and for the social sciences may be confidently expected.

Thus it would appear that psychology is not a house divided against itself after all. The schools represent merely preference for one or another line of approach to psychological problems, or for one or another type of study. There is room for all. Psychology presents a wide and diversified region for exploration. How wide and how diversified, we can perhaps realize if we consider for a moment that a living organism is an infinitely more complex system than any system studied by the physicist. Some aspects of this system fall within the fields of other sciences as physiology and biology, but the aspects falling within the field of psychology are sufficiently diversified to satisfy many types of interest. All that the psychologist who belongs to no particular school—and the majority of psychologists are in this position—all that such psychologist asks is that he may be allowed to deal freely and fully with whatever aspect of behaviour or experience he elects to study, without the necessity of accepting or rejecting the theories or the philosophical presuppositions of any school.

THE SIZE-FACTOR IN ART

E. M. ROWELL

In a paper on "Beauty and Greatness in Art" discussed at a recent meeting of the Aristotelian Society, Professor Alexander says: "In Art there are two standards; there is the strictly æsthetic standard, Is the work beautiful or not; has it attained beauty? and there is the question, Is it great or small? . . . This contrast of beauty and greatness is the old contrast of form and subject-matter." Here is offered a problem of capital importance and of age-long interest, but alongside of it there is a subsidiary and a much slighter question which has been comparatively little noticed and which may yet have bearing on the larger issue. This question is the relation of actual size, of size-in-itself, to the other factors in a work of art, and the reaction, if such there be, of such a size-factor upon the æsthetic whole.

The terms "large" and "small" have suffered some despite in the modern world of relativity, their separate individualities have been lost, and the distinction between them has been blurred till they have become mere moving points in an ordered line, public, abstract, and non-committal, a line which recedes indefinitely in both directions, beyond our view. We say that "great" and "small" are relative terms, that what is "large" in one context is small in another, that what from here is immense is a mere pin-point from there, and we conclude as we move hither and thither that the relation of size is more unstable, "more longing, wavering, sooner lost and won," than any of the other factors of the objects of our world.

A mathematical "reading of earth" seems at first sight thus to reduce the significance of the concept of size, but if we look more closely it would appear that what mathematics takes with one hand it gives back with the other. The mathematician asserts that the terms "great" and "small" have no meaning in themselves, but he goes on to say that the terms have reference to a context, that a quantity is never *large* but always *large enough*. "Large is a word which, standing by itself, has no more absolute meaning in mathematics than in the language of common life. It is a truism that in common life a number which is large in one connection is small in another; six goals is a large score in a football match, but six runs is not a large score in a cricket match; and four hundred runs is a large score, but £400 is not a large income; and so of course in mathe-

matics *large* generally means *large enough*, and what is large enough for one purpose may not be large enough for another."[1]

Size, that is to say, is an intrinsic relation in an occasion, an object, or a being; a thing must be large enough for the purpose it has to accomplish, and any being must be of such dimensions as will accord with its nature and satisfy its range of activity.

The size of an inanimate object, of a plant, of an animal, is related to and proportional to its function, and cannot be altered arbitrarily without doing violence to the whole nature of the entity.

Everything has its *own* size; "who of you by taking thought can add one cubit to his stature?"

This uniqueness of the size-relation is obscured by two outstanding tendencies in modern life. In the first place we have developed a habit, becoming more and more ingrained and confirmed, of seeking to reduce to scale everything we can lay hands on. We make maps of all dimensions, we construct models of things great and small, we draw graphs to illustrate facts true and false; our microscopes make the small great, our telescopes traverse the distinction between near and far, while in our cinemas we may watch the opening of a tiny flower as it were the movements of some giant tree.

Now the idea and method of scaling is valuable and significant wherever we are merely concerned with *order*, but the wanton scaling of the concrete has, to my mind, something immoral about it, and in any case it blinds us in some degree to the nature and proportions of the thing we seek to know. The thing, hidden as it is in its own intrinsic dimensions, eludes our frames of reference, and its individuality is not subject to any external scale.

Perhaps the only things that can be scaled with impunity are toys, or things of the nature of toys. "The house that Jack built" can soar to any height, and seven-leagued boots may replace any pattering shoes; a toy engine of almost any size will make its appointed journeys and fulfil its function of giving pleasure, and a doll, large or small, can equally well be dressed and undressed and put to bed by a small owner. But in real life, a boot, and a house, and an engine, and a baby have their own relative dimensions, and only a very slight modification of range is possible.

The second factor in modern life which prejudices this question of size is the practice of the competitive piling up of more and more quantity with the idea of thereby gaining more and more value. It is the dominance of the plutocratic instinct. In one sense it is money itself which obscures the intrinsic quality of the size-relation —money with its counters of the same size and shape, indifferent as between one and another, coins which *can* be piled up and up,

[1] *Pure Mathematics*, G. H. Hardy.

if not in an actual heap, at any rate in a long column. We begin to hope that we can also pile up other things, that we can increase at will the height of our buildings, the scent of our flowers, the number of our pleasures, the round of our acquaintance.

But size is more and other than magnitude, and in fact it is only when the size-relation of an object is not entirely harmonious with its function that the quality of magnitude detaches itself and makes its own separate impression upon the mind. A thing has its own private and particular size, and it is when the size ceases to be intrinsic to the object that it becomes mere magnitude. Size only seems to call for notice when it is in some way exceptional, perhaps when it is in excess or defect, and not entirely absorbed by the functional whole.

About such excess or defect there is usually something a little grotesque. To the child, the elf and the monster, the giant and the dwarf, are alike acceptable, and natural denizens of a world not yet use-ridden; but in the grown-up "light of common day" such folk or fairies have all an air of unreality about them; to us they are remote, extravagant, hard to receive. "Le complément nécessaire d'un monstre, c'est un cerveau d'enfant"[1] The world of the child is to some extent free from the uses to which later on he will perforce harness it, and the result is that the child is but very lightly subject to the size-relation, which has its main significance in such uses.

It is perhaps worth noting that while we have many adjectives to describe the great and the small, we have almost no words in which to express normal size. In between the "large" and the "small" we have nothing but the empty, colourless, abstract, "medium."

When we come to consider the size-factor in art, it would seem at first sight as though the world of art were as free from the control of the size-relation as is the child's world. The world of art is free from the incubus of use, and from this point of view the artist has the whole range of dimension at his command and can create at will works of *any* size. But this is a superficial view of the matter, and although the function of art is not the "use" of everyday objects, yet a work of art must satisfy functional relations, and the size-factor is intrinsic in the relational whole.

The relation between size and function in art is of a very subtle kind, and is all the more difficult to analyse because of the apparent freedom of the artist to make his object of any size he may choose. As a matter of fact the artist is not free, he is constrained by his conception of his subject to make his work of a certain size and no other; it is probably a constraint felt and not thought, some inner sense of proportion, a sense that there must be a certain

[1] *Variété*, I, Paul Valéry.

adequacy of dimension and that the thing made must be of the *right* size.

And when the work of art is of this *right* size, the size-factor is, as we have seen, absorbed and appropriated by the artistic whole; and this to such an extent that often we are unaware of the size of a statue, say, at which we have looked. Someone asks, "How large was it?" and we reflect, "I don't quite know—it didn't seem particularly large or small." Such uncertainty is a measure of the appropriateness of the size of a work of art to the subject and conception which it embodies. One notices, of course, that the sculptured heroes of Mestrovic are of giant size, but even in such a case it is the heroic character which dominates, and to which the external giant stature is suitable and subservient. Copies of such sculptured figures reduced in size would surely lose something real and intrinsic in this process of reduction; the original size is part of the artist's vision and necessary to the realization of his conception.

So in other arts besides sculpture: a large frame is not suitable to the art of the miniature painter, and a scene of "old, unhappy, far-off things and battles long ago" cannot be painted on a few square inches of canvas.

And in literature a work has its own measure and span; the subject-matter of a short story cannot be expanded to make a long novel, nor can *Anna Karenina* be cut and trimmed to the exigent dimensions of a play. The short story, the play, the novel, differ in length, and they differ in length because they also differ in amplitude.

The idea of amplitude is indeed the clue to this question of the size-factor in art; in a material object it is in general the uses to which it is put that determine the dimensions,—a pot or a pan must be large enough for the cook's purposes, and a pocket-book must be compassable by a pocket,—but in a work of art the character of *use* is sublimated, transformed into that of amplitude, and it is the artist's sensibility which reacts to and elicits the subtle relations between size and amplitude. Professor Alexander makes this distinction: that the beauty of a work of art depends upon its form, whereas its greatness is a function of its subject-matter. Perhaps this distinction is too clean-cut, since there must also be greatness of treatment of the subject-matter, and I think the suggested word amplitude takes account both of the breadth of subject and of its treatment by the artist. The artist expands or contracts his measure in accordance with the measure of his subject-matter. A painter may paint a large portrait; but a caricature is generally small, since here the artist is concerned with the emphasis—or over-emphasis—of a single characteristic of his subject.

Browning says:—

> He who works in fresco, steals a hair-brush,
> Curbs the liberal hand, subservient proudly,
> Cramps his spirit, crowds its all in little,
> Makes a strange art of an art familiar,
> Fills his lady's missal marge with flowerets.

The poet may condense his meaning and enclose his message in the "scanty plot of ground" of the sonnet, or he may fare far forth on the broad highway of the epic. There are for him

> Thoughts hardly to be packed
> Into a narrow act;

and Browning turns away from his lyrics to trace the vast, sombre canvas of the *Ring and the Book*, while Wordsworth sets out on his pilgrimage of *The Excursion*. And, coming to our own day, in Thomas Hardy the curt and exquisitely economized perfection of *The Brothers* or of *The Oxen* contrasts with the rugged, granite-hewn imperfection of *The Dynasts*. In all these cases there is a difference of amplitude;—a mood, an impression, an episode contrasted with a life lived, a human drama, a world-conflict.

The strange thing is that so much *can* be packed into the narrow act of a short poem, and two lines may point a moral and adorn a tale.

Hilaire Belloc's brilliant epigram on modern life is a striking example of poetic economy:—

> I said to heart: "How goes it?" Heart replied:
> "Right as a ribstone pippin." But it lied.

The epigram may be said to sting; "il est des paroles qui sont abeilles pour l'esprit. Elles ont l'insistence de ces mouches, et le harcèlent. Celle-ci m'a piqué."[1]

To me the two lines suggest the gallant quality of modern youth, of modern life, its brave front and its underlying pessimism, its capacity for carrying on against odds, its insistence upon satisfaction, and its grim dissatisfaction. The incisive phrases urge one to carve a poem for oneself out of the mass of suggestion that the lines include; the epigram is indeed of the nature of a potential poem. There *is* amplitude of subject, but it is potential rather than actual; the poem is perfect in its dart-like precision of aim and its inerrancy of direction, but the actual range is undetermined, and till we have made the poem each in his own heart the song "remains unsung to this day."

Belloc's lines are, as it were, the *title* of a great poem, and the length of a title bears no proportion to the subject-matter involved.

[1] *Variété*, I, Paul Valéry.

The actual writing of a poem of such a title needs more than a scanty plot for its realization, and in such a work as *The Testament of Beauty* we understand that "art is long." Here the poet tries to compass a vast field, to express the essence of the experience of our modern world, and to draw from it what it holds of loveliness. The field he broods over is broad and far-scattered, partly fallow, partly fertile, and what it yields of poetic quality is uncertain and uneven, varying from the prosaic and informative to the imaginative and sublime. And the product of this wide quest, the poem itself, is long, discursive, unequal, and so it must be, since the poem shapes itself after the pattern of the poet's meandering track. The quest is arduous and the poem long; we call it a great poem and give it pre-eminence not so much for its achievement as for the magnitude of the attempt. Such a poem dwarfs lesser things by the amplitude of its subject-matter, the magnanimity of its spirit, and the heroic attempt it makes to fuse and solve in the fire of poetry the "obstinate questionings of sense and outward things" and the "blind misgivings" which confuse and torment the modern spirit.

It would seem that in art the size-factor is directly dependent upon the amplitude of the artist's conception, but it may be that the relation between size and amplitude is to some extent at any rate reciprocal. The influence of the size-factor upon amplitude was interestingly suggested by Dr. Bower in his presidential address at the meeting this year of the British Association. He said: "The somewhat technical facts thus described may be taken as examples of a relation of form to size which is very general. They suggest the existence of a size-factor which is effective in determining form. . . . Of all the factors that contribute to the determination of form in growing organisms there is none so constant and inevitable in its incidence as this size-relation."

In such arts as architecture or fresco-painting, the size-factor is obviously largely determinant of the form, but I think this factor has a measure of determination also in works of art whose function is purely æsthetic. There is, of course, the extreme case of the sonnet with its fixed length and well-marked structure, limits welcomed at times by the poet who thankfully metes out his subject within them.

> And hence for me,
> In sundry moods, 'twas pastime to be bound
> Within the sonnet's scanty plot of ground;
> Pleased if some souls (for such there needs must be)
> Who have felt the weight of too much liberty,
> Should find brief solace there, as I have found.

And apart from such set bounds, in creating anything, the artist has, I think, *some a priori* feeling of size in his mind; he has a

sense of the dimensions of the thing he wants to make, whether it be a picture, a statue, an essay, or a poem, and this underlying sense of size is to some extent directive of the form the work takes and of the subject-matter it includes. If the statue had been bigger, it would also have been other; thus from this side too it results that there can be no scaling up or down in a work of art, no violation of the size-relation.

But whatever share the size-factor may have in the determination of form, it is certain that size and amplitude cannot be divorced; the dominant factor is amplitude, and size *is* perhaps amplitude in its abstract quantitative aspect.

PHILOSOPHICAL SURVEY

PHILOSOPHY IN FRANCE

THE LATEST PHASE OF M. BERGSON'S PHILOSOPHY

In April, Professor Henri Bergson published his researches into the origins of morality and religion that have been awaited impatiently for many years. It is a book that none but M. Bergson could have written. Criticism subsequent to his *Creative Evolution* does not appear to have modified his views in the slightest, and the present work[1] is a natural and logical completion of the principal theses he developed earlier; *e.g.*, that life is an effort to obtain certain things from brute matter, that instinct and intelligence at their development are the two instruments employed to this end, that granting 'utilization,' hence 'fabrication' and *a fortiori* 'invention,' all the elements of intelligence can be dissected and traced back, one by one, since its destination explains its structure. Starting then from the terminus of one of the great efforts of nature, *viz.* those groups of individuals, essentially intelligent and partially free, that are human societies—M. Bergson turns to that other evolutionary terminus in which the individual is blindly serving the interests of the community.

He begins by conducting a phenomenological analysis of social obligation, with a view to disclosing eventually its origins. However readily and rightly philosophers distinguish between natural law and social law, these distinctions are far from clear to the majority of men. Every law is popularly viewed as a commandment, only after serious efforts are the principles of mechanics seen otherwise than as "inscribed from eternity on tablets which science has discovered on another Sinai." Physical laws are "commandments"; facts 'obey' them, and moral laws are of like character, for they receive from natural laws that which is 'irresistible' in them, while natural laws on the other hand take over from moral laws what is 'imperative' in them. In this way an infraction of the social order comes to assume the appearance of being 'against nature.' Everything contributes to make the social order an imitation of the order observed in nature. On the thousand occasions of daily life when we are compelled to choose, it is in conformity with rule that we do so. Our duty is almost always performed automatically, as a *laisser aller ou un abandon.* Those like Kant who analyse obligation into rational factors have, by taking something else for it, mistaken its real character. They should have distinguished between a *tendency*, natural or acquired, and a *method* (necessarily rational) which a rational being employs to combat opposition to the tendency. Because reason intervenes in a regulative way, to assure coherence, Kant supposed reason to be a 'principle' of obligation. Far from being an exaction of reason, obligation should be conceived as constraining the will rather in the manner of habit, each obligation exercising as its own proper pressure the weight of other obligations it summons in its train. An absolute imperative is instinctive, somnambulistic. A society, human or animal, is an organization, hence it originates, either as 'lived' or as both 'lived and represented,' an ensemble of rules or laws. And the deeper we dig

[1] Henri Bergson: *Les Deux Sources de la Morale et de la Religion.* Bibliothèque de Philosophie contemporaine. Paris: Alcan. 1932. Pp. 346. 25 francs.

towards the roots of various obligations, with a view to discovering the essence of obligation itself, the more does obligation tend to become necessity, and the nearer does it approximate to instinct in its imperative character. Yet it is not strictly instinct, but rather "virtual instinct" like that which underlies, for example, the habit of speech. "The morality of a human society is in fact comparable to its language."

"A being does not feel obligation unless he is free; each obligation taken apart implies liberty." But *that* there are obligations is a necessity. Societies, primitive or civilized, are 'closed' systems. Though vast in comparison with little groups instinctively formed, such as the family, it is none the less of the very essence of a society to include certain individuals and to exclude others. Social duties are directed towards social cohesion, and social obligation towards a 'closed' society. Though 'coated' with a morality (which, indeed, the society sustains), social obligation is not in principle directed towards humanity. "Between the nation, no matter how great, and humanity, is all the distance from the finite to the infinite, from the 'closed' to the 'open.' The popular view that by apprenticeship in civic virtues, through love of family and thence of country, our sympathy progressively broadens until it finishes by absorbing humanity entire, is an *a priori* distortion of the facts. For it supposes there corresponds with each enlargement in the object loved an expansion of the sentiment itself. But the difference between this or that society or nation and humanity is one of kind, not of degree: "we do not reach humanity by stages, *via* the family and the nation." And the love of which religion speaks refers to obligation of another kind. Social obligation is seen in greater purity and perfection the better it reduces to impersonal formulæ, but the obligation which religion contemplates requires, for its full expression, incarnation in some privileged personality who stands as an example. "The generality of the former derives from the universal acceptance of a law, that of the latter from the unanimous imitation of a model." Thus, natural obligation is a "constraint or drive," whereas in morality complete and absolute there is an appeal. "Founders and reformers of religion, saints, obscure heroes of the moral life . . . these are the conquerors; they have crushed the resistance of nature and raised humanity to new destinies." To raise ourselves above a morality of narrow social incorporation to the wider morality of religion, a passage which appears to intellect as one from part to whole, does not seem in theory excessively difficult to effect. But it is not by teaching as duties the love of neighbour and the expansion of sympathy that the passage can be made. "What appears easy to our understanding is not necessarily so for our will. Where logic declares a certain route the shortest, experience supervenes and shows that that way lies no road. The truth is that here we must pass by heroism to arrive at love."

The mediating rôle that reason assigns to itself, then, opens out a misleading perspective. Will has its proper genius no less than thought, and that genius defies all forecasting. Intelligence and language, fashioned for dealing with things, are ill-fitted to express transitions and progressions. For this reason we find, for instance, New Testament morality bordering on the paradoxical and even the contradictory, though the paradox falls away immediately we reflect that the intention of its maxim is to induce a certain state of mind. Between *l'âme close* and *l'âme ouverte*, however, there is the *âme qui s'ouvre*, and how morality can have come to take possession of the soul is something philosophy has still to explain. To the "infra-intellectual constraint" of 'closed' societies is opposed a "supra-intellectual aspiration"—to a force of impulsion, one of attraction. Thus the form of morality accepted by civilized humanity to-day comprehends two phases—a system of orders, dictated by the impersonal

exactions of societies, and an ensemble of appeals made directly to the conscience of each man, by individuals representing the best in humanity. These two forces, operating differently, are projected on an intermediate plane—that of intellect. Here they intermingle and interpenetrate, 'orders' and 'appeals' become transposed by pure reason, justice being ceaselessly expanded by benevolence, benevolence assuming more and more the form of justice. Manifestations of moral life so organized are seen to be internally coherent and hence reducible by intellect to principles. But it does not follow from this that morality has its origin, or even its basis, in pure reason. Neither obligation, nor that which sustains it, can be derived from idea pure and simple. So when morality is thought of as being founded in religion it is no longer of a purely intellectual representation we are thinking. Something new is introduced which communicates its efficacy to, and so sustains, that morality. And it is something specifically 'religious.' We are mistaken, then, in supposing that moral constraint and moral aspiration find their explanation in the life of society as such. For in order that society may exist, the individual must bring with him a whole group of innate dispositions. Society is therefore neither self-sufficing nor self-explaining, so the search must continue beneath social acquisitions, until we reach life itself—that *élan vital* of which societies, like the human species, are nothing but manifestations. All morality—constraint or aspiration—is, M. Bergson concludes, in a very wide sense of the word, "biological."

Intelligence, issued from nature for the service of life, cannot transcend itself, but at the supra-intellectual level—that common ground for all mystics —"the soul, by an exaltation of all its faculties, *voit grand* and, however weak it be, *réalise puissamment*. Above all, the soul sees simply, and this simplicity, impressed in her speech as well as her action, guides her through complications of the very existence of which she seems unaware. An inborn science, or rather an acquired innocence, thus suggests from the very outset what is the effective step, the decisive act, the unanswerable word."

Now an individual essentially intelligent is naturally superstitious, and nothing that is not intelligent is so. Fabulation (the faculty that generates fictions) is indiscriminately assigned by psychology to imagination without inquiring sufficiently into its use and its diversity from other activities so assigned. The cause and the *raison d'être* of the "fabulizing function" (*fonction fabulatrice*) is religion. And the need which must have exacted such a function from mind is, briefly, the need of thwarting or counteracting judgment and reason. For it is a peculiarity of the intellect to go straight on—when oriented towards error no less than towards truth—passing from consequence to consequence, from analysis to analysis, either to sink deeper into error, or to open out towards the truth. Fictions and *images fantasmatiques* intervene in this way for protective and preventive purposes. "They play a rôle that could have fallen to instinct, and which doubtless would have fallen to it in an individual naturally lacking in intelligence." Religion in its primitive form is thus a precaution against the dangers due to self-obsession incurred directly we begin to think. It is a direct means of social preservation, a defensive reaction on the part of nature against intellectual representation of the inevitability of death—one therefore in which society is concerned no less than the individual, since society too needs to assume stability and duration. But though death is 'accident' *par excellence*, to how many other accidents is human life exposed? Does not the very application of intelligence to life open the door to the unforeseen, and so introduce the sense of risk? Thus, by extension, religion becomes a defensive reaction against the representation intellect furnishes of "that disheartening margin of the unforeseen that lies

between initiative taken and result wished for." So in its most ample expression we may define the purpose of the 'fabulizing function' as that of elaborating a 'natural' religion which is characteristically 'static.' "It is a defensive reaction on nature's part against what, in the exercise of intellect, is depressing for the individual and dissolvent for society." In religion as in morality, the intermediate level of intelligence is thus a meeting-place of oppositions occasioned by movements in contrary direction. So great is the opposition at times that we are driven to ask whether the same name should serve to denote two such different types, *viz.*, (i) "static religion," in which attachment to life evokes this 'fabulizing function' to compensate against the dangers associated with the development of intelligence, and thence obtain, by means of faith, assurance against fear, and (ii) "dynamic religion," which expresses the revitalizing and liberating power of exceptional individuals who shed the light of a mystical genius.

To resume, moral obligation was 'made' for a 'closed' society, though it becomes amplified in an 'opening' one. A 'closed' society cannot live and resist the dissolvent action of the intellect, preserve and communicate to its members an inalienable confidence, *except through a religion* which issues from the 'fabulizing function.' Thus, religion that is 'static' and obligation that is 'constraint' jointly limit the 'closed' society. An 'open' society, which embraces *en principe* the whole of humanity, realizes itself in fuller degree in successive creations, each of which effectively surmounts difficulties previously insurmountable. But after each progression, the circle momentarily opened closes again, and something of the new flows into the mould of the ancient, individual aspiration becomes social constraint. And just as the new morality takes on body only by borrowing from the 'closed' society its natural form (obligation), so dynamic religion spreads only by means of the images and symbols furnished by the 'fabulizing function.' Examination of this distinction between the 'open' and the 'closed' reveals new and vast problems, illuminates old ones, suppresses purely 'theoretical' questions and destroys "false" ones. But how does the distinction help us in practice? To deal with this we must first notice that it is in customs, institutions, even in language that moral acquisitions settle down and find their place, and are thereafter communicated through education from generation to generation by habits which eventually come to be regarded as hereditary. But they are not so, "a sociology which imagines itself to be borrowing from biology the idea of hereditary transmission of the acquired is but taking back what it had loaned."

The fact is that nature, which "willed" small societies, has nevertheless opened the way for their aggrandizement. And, if she did not 'prepare for war,' at least she 'prepared' the conditions of life that rendered it inevitable. Though war may not necessarily aim at conquest from the very outset, it is in conquest that it results. But all great empires, the fruits of war, have fallen into decay; the causes appear various, but in reality are one, namely, that the empires were too vast to live. Of little moment are the reasons given to justify wars, or the motives assigned for them, the origin of war is always the same—property, individual or collective. And since humanity is, by its very nature, "predetermined" towards property, war is natural. And nature has taken her precautions here too, she has "interposed between foreigners and one's own society a veil cunningly woven of the threads of ignorance and prejudice." Yet he who knows *au fond* the language and literature of a people can "strike down at one blow the prejudice 'willed' by nature against what is 'foreign.'" With less than the threat of starvation—without even comfort, amusement, luxury, life is esteemed uninteresting. With the growth of population, loss of markets, lack of fuel and raw materials, the stage is set

for war. "To eliminate these causes, or lessen their consequences, is the task *par excellence* of any international organization that aims at abolishing war." Humanity, then, must undertake to simplify its existence with as great an energy as it used in complicating it. Not that privation has to be transformed artificially into pleasure—"what is fine is not the being deprived, nor self-deprivation, it is the being unconscious of privation."

So, 'open' to the unfathomable future, M. Bergson concludes: "Humanity groans, half crushed under the weight of the progress she has made. She is but half aware that her future depends on herself. It is for her to decide, first of all, whether she wishes to live on. It is for her to ask herself next if she wishes merely to live, or whether she will, in addition, make the effort necessary so that the essential function of the universe may be fulfilled, even on our refractory planet."

S. V. KEELING.

PHILOSOPHY IN GERMANY

This survey deals with (i) a discussion of causality by Philipp Frank, who belongs to the scientific school of philosophy; and (ii) with a psychopathological research into the consciousness of guilt by Otto Kant.

In *The Causal Law and Its Limits*,[1] PHILIPP FRANK (Professor at Prague) treats the problem of causality from an interesting point of view. The question of meaning is central. It is exceedingly difficult, he shows, to formulate the law so that it states something both important and comprehensive about existent reality. Every question is discussed in the closest connection with scientific procedure and discovery.

Frank's general views on the nature of propositions determine his treatment to a large extent, and are stated in the first section of his book. Scientific propositions are of two kinds. They are either about our use of words, and are then tautologies, or they make statements about concrete existents (and all existents are experiences). Only these two kinds of proposition are true or false. A general proposition does not disclose its truth or falsity until analysis exhibits its relation to reality, that is to experiences. Such analysis forms an important part of every science, and is a philosophic activity. Frank holds the same views of philosophy as M. Schlick and R. Carnap, and these views have been indicated in previous surveys.

The law of causality, so Frank points out, claims to be a law about reality, but it easily becomes a tautology, and in that case only applies to words. His main problem is to formulate it so that it really does apply to reality. The first step, so he believes, is to see that predetermination is only significant in terms of prediction. The law of causality makes a statement about prediction, and the difficulty is to see exactly what this statement is. The strictest formulation is that of Laplace, and according to this, the state of the world at every time past or future can be calculated from its present state. After criticizing this view, Frank considers alternative formulations based either on invariable succession or law. There are difficulties in either case. If we formulate causality in terms of invariable succession we have to define what we mean by "similar states," a very difficult task. We have also to admit that in actual fact recurrence is very partial and limited. And the proposition "A is always followed by B" says less about reality the less

[1] *Das Kausalgesetz und seine Greuzen.* Julius Springer. Wien, 1932. Pp. xv + 308.

recurrence there is. Suppose on the other hand that we define causality in terms of law. We shall then assert that laws exist which enable us to calculate succeeding states from every present state. This formulation does not require recurrence, but raises other difficulties. It only says something about the real world in so far as we know the exact character of these laws. But in actual fact our knowledge of such laws is very limited. Our experiences, so Frank concludes, provide no proof either for or against the law of causality. And it is meaningless, he believes, to ask whether it applies to a real world, distinct from our experiences. It is meaningless because the statement that such a world exists, is itself meaningless. None the less experience justifies our faith in causal laws, that is to say in particular causal laws as distinct from the law of causality.

Frank carefully considers the various anti-causal tendencies, and concludes that they are all unjustified. Though we cannot maintain a strictly formulated law of causality, we have no ground for believing in anti-causal laws. He maintains against the vitalists: (i) That the distinction between determination though the present and though the future can be applied to *all* events, whether organic or not. (ii) That words such as "purpose," "final cause," and "entelechy" are meaningless unless mind is included in their meaning; hence the more scientific vitalism tries to become, the more it empties these terms of psychological content, the less scientific it is in reality. (iii) That vitalism bases its distrust in causal explanation on the primitive ideas of classical mechanics. (iv) That system has the same importance for physics as for biology. In discussing the quantum theory, Frank distinguishes between the negative statements which it makes and the positive constructions built upon them. Present-day physics cannot determine the path which the electron will take from the initial state of the atom round which it revolves. But the quantum theory has produced no evidence whatever to show that the electron is determined by laws which resemble psychological laws. It has produced no reason whatever for replacing causality by concepts such as plan and purpose.

In *Biological Ethics*[1] Otto Kant (Tübingen) discusses the conditions which produce a sense of guilt. The normal man is only conscious of guilt at infrequent intervals, but some people (for example neurotics) have a perpetual sense of guilt—it dominates their lives. What accounts for this domination? Kant maintains that the answer to this question will explain the sense of guilt wherever it occurs. We shall only need to distinguish the circumstances which make it perpetual from those which make it infrequent. It is mistaken, he believes, to suppose that men of exceptional moral worth are most inclined to this experience. It is also mistaken to connect it with exceptionally strong instincts. Kant reaches his main conclusions by examining the sense of guilt in neurotics.

In normal men the tendencies to self-surrender and self-assertion develop harmoniously. But the mental structure of the neurotic is broken up—and indeed destroyed—by perpetual discord. Kant, using concrete examples, gives a detailed analysis of this discord. He bases his analysis on the distinction between instinct (*Trieb*) and conative tendency (*Triebfeder*). The latter belongs to a higher mental level and is directed on an individual object. The aggressive instinct (*Trieb*), for example, is correlated with desire for power (*Triebfeder*), while desire for power and love for some particular person are opposed (though in the normal man not hostile) conative tendencies. The neurotic feels guilty when an instinct conflicts with its opposed conative tendency—for example when the aggressive instinct conflicts with his desire

[1] *Zur Biologie der Ethik.* Julius Springer. Wien, 1932. Pp. 160. RM. 8·80.

for self-surrender. And this conflict is permanent because of the permanent discord in his mental structure. The feeling of guilt has a threefold function. It is a warning, because satisfaction of the instinct would produce an unbearable shock; it is a substitute experience; and it saves the subject's self-esteem by depreciating the instinct he cannot satisfy. The case is more complicated but similar when the "ideal-self" is involved, and the instinct conflicts with a duty as distinct from a conative tendency.

Sense of guilt in the normal man is due to similar causes, to conflict between an instinct and its opposed conative tendency. But the conflict is temporary instead of permanent. The normal man usually satisfies his desire for surrender and his desire for assertion without a disturbance of harmony. There may, however, be a momentary clash, his aggressive instinct, for example, may assert itself against someone he loves, and a feeling of guilt ensues. But the neurotic never satisfies his conflicting instinct, which is permanently hostile to its opposed conative tendency. Hence the normal man experiences guilt at infrequent intervals and the neurotic perpetually. But the experience is always due to the same cause, to discord between the self-surrender and self-assertive tendencies. The man with a perpetual sense of guilt, whether neurotic or not, belongs to a type midway between the moral insanity and normal types. The man who is morally insane lacks both the need and capacity for self-surrender. The normal man both feels the need, and is able to satisfy it. But the man with a perpetual sense of guilt feels the need, and lacks the capacity to satisfy it.

Kant concludes this interesting account by discussing the relation between sense of guilt and free will.

HELEN KNIGHT.

NEW BOOKS

Philosophy and the Ordinary Man. By Sir Herbert Samuel. (London: Kegan Paul, Trench, Trübner & Co., Ltd. 1932. Pp. 39. Price 1s. 6d.)

Sir Herbert Samuel's presidential address to the British Institute of Philosophy is at once a defence of the purpose for which the Institute was founded, and an eloquent appeal to the philosophers to take a hand in furthering that purpose. The ordinary man, either consciously or unconsciously, is involved in philosophy by the processes and demands of his own life. He has a right to ask that the experts should not sit aloof upon their Olympus, but descend to the arena and take their part in the conflict of a developing social life. The scientists have begun to explain their knowledge in ordinary language, and the public response has been generous and grateful. Why do not the philosophers follow suit?

"Why should they?" may be the retort. "The ordinary man shows no particular interest in philosophical discussions." But to this Sir Herbert has given an answer which deserves careful consideration, and which, if it is cogent, would make it a social duty for the practitioners of philosophy to accept his challenge. We cannot expect the ordinary man to show an interest in discussions which are carried on in technical phraseology which he cannot comprehend. "What is written in an esoteric language will be read only by a priestly caste." It is indeed much easier to write philosophy in the vernacular than to write modern science. And there is a cogent reason for asking that it should be done. The very popularization of scientific theories, particularly controversial theories of the moment like the "principle of indeterminism," inevitably gives rise to a deal of uncritical philosophizing; and this in its turn tends to shake the foundations of belief, particularly of moral belief, upon which our society rests. Upon the philosophers there lies the burden of correcting this uncritical thought, and of correcting the effects of rash scientific generalization upon untrained minds. Philosophy must give the ordinary man the full vision of truth when others are providing him with one-sided, and therefore unbalanced, aspects of the truth. In support of this plea, Sir Herbert has included in his address a most interesting letter from Einstein.

All friends of the Institute will feel profoundly grateful to its distinguished President for using the opportunity of this address to voice a growing demand for philosophy in the vernacular, and for a philosophy that will take its share in solving the problems that beset our civilization in the present crisis. It is for the philosophers to answer the appeal, if they are not to fail in an obvious duty. There are difficulties in the way. It is by no means easy to achieve the necessary simplification of language. But that is perhaps the least of the problems that face us. There is the one which Sir Herbert himself has pointed out—the absence of any substantial agreement amongst philosophers as to the proper conclusions, or even the proper methods of seeking for conclusions. That, too, might be overcome by the courage that would submit to general judgment the tentative conclusions which each philosopher has reached, and would test them as hypotheses, against the particular facts to which they are relevant. But the greatest difficulty, and perhaps the ground reason why philosophy remains among the stars, aloof from the practical issues, is that there is not and cannot be any guarantee that the conclusions of free philo-

sophical discussion, applied in plain language to plain problems, may not prove far more revolutionary than the limited and one-sided views which they are called in to correct. Real thought on fundamental issues has usually proved dangerous, if not in the long run, at least in the immediate issue. Yet in the interests of common truth and common welfare ought we not, perhaps, to face that risk?

JOHN MACMURRAY.

A Study in Æsthetics. By L. A. REID, M.A., Ph.D. (London: George Allen & Unwin Ltd, 1931. Pp. 415. Price 15s.)

Dr. Reid's book has had to wait too long for its review in *Philosophy*, and the reviewer must express his regrets. The delay was due not to any lack of interest or good will, but to circumstances outside his control; but, having undertaken to review the book, he might have passed it on to someone else, had he not been too much interested in it to do so. This must stand as his apology.

It is a long book, and much of it is concerned with special problems in æsthetic, such as the relation between beauty and greatness, art and truth, art and morality, the "kinds" of beauty (the sublime, the tragic, and so forth), the beauty of nature, and that "competition of interests" in works of art which renders the case of opera, for example, a problem both for taste and for theory. On all these subjects Dr. Reid has things to say that are worth saying. He never commits himself to hasty judgments, but approaches each problem with an open and unprejudiced mind, weighs carefully what other people have said about it, and finally puts forward a solution which seldom fails to convince and satisfy the reader. An excellent example is his treatment of a "complex" art like opera. He confesses that, for his own part, he does not enjoy opera; but instead of allowing his theory of it to be warped by his personal taste, he states with perfect clearness the principle on which it depends: "Song is not 'music' plus 'poetry'; it is 'words-sung,' and its beauty is a new 'emergent' beauty which is judgeable by its own intrinsic standards and not by the standards of music or poetry as they exist independently." Accordingly, opera is justified not on the lines of Wagner's theory, which would make it an æsthetic chimæra, but by conceiving it as a true æsthetic whole whose elements are transformed by entering into it. Again, his treatment of the relation between art and truth is excellent: art as such, he agrees, asserts nothing; and yet any work of art expresses values, and these values may be real values, values of universal human import; and so, in this sense, art may (or, no doubt, may not) express truth. Or again, he discusses with admirable justice the question whether or not the artist is essentially addressing an audience, as is maintained by Mr. Richards and Professor Abercrombie; and the question how beauty is related to efficiency (with the upshot that efficiency is not in itself beautiful, but "must be imagined æsthetically like any other object"), and many others.

This careful and judicious handling of particular problems is only one aspect of a sound attitude towards the fundamental problem of central æsthetic theory. The early chapters of the book are devoted to the exposition of such a theory; and it is because the theory is a good one that its applications, in the later chapters, are so satisfying. Briefly, the theory is that beauty is just *expressiveness*; that the æsthetic attitude is a *contemplative* attitude, and that what distinguishes it from other kinds of contemplation is its

imaginative character. Here are the main headings of a theory in line with the classical tradition of æsthetics—Dr. Reid has clearly no desire for a cheap originality—and the present reviewer accepts them with some enthusiasm. But there are difficulties left, especially in connection with the idea of expressiveness.

The æsthetic object "expresses" such things as joy, sorrow, excitement, power. These things exist, not in it, but in us. Yet, for the æsthetic experience, they appear to exist in the object: the music appears itself to contain joy, and the like. In common phrase, our feelings are objectified, transferred to the object, projected into it. How does this happen? Dr. Reid seems to think of it in some such way as this: The object stimulates our organism and gives rise to such states as joy: thus, when we contemplate the object, we experience the joy. Now, if we were thinking scientifically, we should recognize that the joy is in us and not in the object; but in æsthetic contemplation, absorbed as we are in the object and, comparatively speaking, unobservant of ourselves, we ascribe the joy of which we are conscious to the object, and imaginatively regard *it* as possessing what in reality belongs to *us*.

This, if correctly reported, seems a difficult theory. If it were true, then (i) every case in which we impute our feeling to an object would be one of æsthetic experience. For instance, when a person, because he is in a bad temper himself, thinks that those round him are in a bad temper, he ought to find these persons beautiful. Again, (ii) as soon as, on learning the truth from Dr. Reid, we discover that the joy belongs not to the music but to ourselves, we ought to cease finding beauty in the music; for the imaginative "imputation" of joy to the music is really a kind of highly specialized illusion, and on the discovery of its true nature it ought to vanish. One is reminded of that other highly specialized illusion by which, in Mill's *Utilitarianism*, virtue, valuable in reality for its desirable results, comes to be nobly but mistakenly loved for itself. This is not to dispute the main point, that music does express joy; the question is whether that expression can be accounted for on Dr. Reid's theory; and, if I have understood that theory, I think it cannot. But I suspect that the failure—if I am right in thinking that there is a failure—proceeds not from any defect in Dr. Reid's solution, but from a defect in the problem itself. The problem is, how can the æsthetic object, which is *out there*, express feelings which are *in me*? This question, which he shares with Bosanquet and Santayana and many other writers on æsthetic, seems to me simply unanswerable; any answer that we attempt to give, without going behind the terms of the question, must ultimately come to this, that the object cannot really express my feelings at all, and that therefore the æsthetic experience is an illusion. In fact, there seems to be only one condition on which the æsthetic experience, defined as we are all pretty well agreed to define it, is possible, namely, that the æsthetic object can be identified with *language*, *i.e.* with objects created by us for the purpose of expressing our feelings. The æsthetic theories generally current among ourselves (Dr. Reid's is no exception) follow our current theories of knowledge in concentrating their attention on perception as the central fact to be studied; and this commits them to beginning with a suitation in which the object is "out there" and my feelings "in me," and then trying to explain how my feelings can get into the object as, for æsthetic experience, they plainly seem to have done. Croce's theory, however it may be criticized, has at any rate the merit of starting from the question, "How is æsthetic experience possible?" and of answering that it is possible if every æsthetic object is somehow a kind of language, and the æsthetic experience in general more like talking than perceiving.

This approach to æsthetic really seems to be that which Dr. Reid would like to adopt, because the cardinal word in his whole book is the word expression. But the traditional emphasis on perception forces him away from any such approach, and seems to make it difficult for him to understand Croce even where, in point of fact, he agrees with him. A curious example of this is Dr. Reid's treatment of ugliness. Croce denies that any work of art can be ugly; for ugliness, according to him, is inexpressiveness, and the business of a work of art is to be expressive; therefore an ugly work of art is a contradiction in terms. It would follow that a really bad poem, for example, would, so far as it was ugly, not be a work of art at all, but something else; it represents an attempt, but an unsuccessful attempt, at expression. This is exactly Dr. Reid's own view. Of "trashy poems, pictures, and tunes," he says that we know them to be definitely bad "because we understand the wretched thing so well . . . we know the motives to which it appeals . . . [we know] what they try, and fail, to express." Yet Dr. Reid seems to think that he is rejecting Croce's doctrine.

One result of this orientation towards perception, instead of language, is Dr. Reid's attempt to show that simple sensa are, or can be, expressive. The passage dealing with this subject is not really convincing. We are told that simple sounds and colours appear to us as expressive, *e.g.* as cheerful, melancholy, etc. And instances are quoted: "The trumpet has a martial quality . . . the notes of the clarinet hesitate with an appealing pathos, the French horn is a buffoon." What does this mean? Not, certainly, that the clarinet is always pathetic and the horn always comic; that would be flagrantly untrue, and Dr. Reid warns us that "elements out of their context cannot possess the same meaning as elements in their context." So the pathos of the one instrument and the buffoonery of the other can, evidently, be modified or cancelled by orchestral context and other variables. But in that case, what becomes of the original statement? Does it mean that the horn's buffoonery tends to "creep in," like the cheerfulness of the would-be philosopher, when nothing very definite counteracts it? I cannot see any trace of this in any actual music. Thinking over Beethoven's symphonies, for example, I recollect the horns used again and again to give effects of solemnity, mystery, grandeur, enchantment; but for a clear case of buffoonery I have to go to Richard Strauss and the opening of *Till Eulenspiegel*, where Strauss's virtuosity enables him to extract horseplay out of an instrument normally associated with the sublime. Equally devoid of real significance is the ascription of pathos to the clarinet, when tested by actual musical practice. And if Dr. Reid said, "No doubt: I have warned you that context modifies significance," I should be obliged to answer: More than that, it *creates* significance, and the supposed expressiveness of simple sensa is an illusion. That which possessses æsthetic significance is always a concrete whole, and when this whole is cut up into its parts there is no guarantee that the parts will retain any share of the significance which belonged to the whole. Difficulties of this kind could, I suggest, be resolved by treating æsthetic, not as a branch of the theory of perception, but as a philosophical science in its own right. Dr. Reid has laid down the first principle of such a science by stating that "Beauty is just expressiveness." He has given us so much in this book towards a satisfactory theory of beauty that he encourages us to hope for more.

R. G. Collingwood.

Immanuel Kant in England, 1793–1838. By René Wellek. (Princeton University Press; London: Humphrey Milford. 1931. Pp. vii + 317. Price 13s. 6d.)

A monograph on this subject has been long overdue. Dr. Wellek is to be congratulated on being the first to supply one which for fullness and accuracy of detail is not likely for many a day to find a rival. He has traced the process by which Kant became naturalized in England from the moment when the first word of him came from Holland in 1793, through the notices of him in the Scottish philosophers Stewart, Brown, and others, through Coleridge, and what the author calls the Romantic Generation, including Crabb Robinson, de Quincey, Hazlitt, and Carlyle. He has examined minutely the writings of the early commentators and reviewers, hostile and favourable, some of them —even the best known at the time—hardly even names among scholars at the present day. Finally, he has given a record with an estimate of the merits of early translations of Kant's works: Semple's of the *Groundwork to the Metaphysic of Morals* and the *Metaphysic of Morals* in 1836, of *Religion Within the Boundary of Pure Reason* in 1838, and Haywood's of the *Critique of Pure Reason* in the same year as the last. In each of these sections of his work he has left no stone unturned in the reviews, letters, even manuscript remains of the period whence light might be brought to his subject. On the whole, as he tells the story, it is a melancholy record, when not of malignant opposition to the "all-crushing" sceptic of Königsberg, of persistent misunderstanding and misrepresentation. Even the work upon Kant which we owe to " two enthusiasts," Henry James Richter and Thomas Wirgman, the one a painter, the other a jeweller, is that of men whose zeal for their hero outruns all knowledge and discretion. Looked at from the heights of insight to which nigh a century and a half of continuous study and comment has raised the present generation, the raking analysis and criticism to which these earlier writers are here subjected is no doubt amply justified. Yet one cannot help feeling that too little allowance is made by the author, whom we welcome from Czechoslovakia, for the difficulty with which English thinkers, trained as they were in a wholly different school (whether that of Locke and Berkeley, or that of Cudworth and Butler), found themselves faced on their first contact with the stream of German Idealism initiated by Kant. As the present writer has tried elsewhere to show, there was already in these years a long tradition of idealistic thought seeking to combine Platonism with what was of fundamental truth in Christian theology, and no more pledged to what Dr. Wellek calls "Anglicanism" than Continental thought to Lutherism or Calvinism. Founded as this was on the idea of Logos or Reason as the principle at once of reality and of our apprehension of it, it could not be expected to yield without a struggle to a philosophy which was founded on the denial of the power of reason to provide us with more than regulative notions and which meant the death of speculative philosophy, as well as of anything that could be called a theology. This in itself was no excuse for impatience and misrepresentation. But it does explain the determination of men like Coleridge, who is rightly described as "the intellectual centre of the English Romantic Movement," and to whom by far the longest chapter is devoted, to preserve their balance in what, rightly or wrongly, seemed to them the devastating hurricane of Kantian criticism. That some of them—Coleridge in particular—should have emerged from it with a scheme of thought which, as the author tells us, is no longer "a part of poetry, but can be expressed in logical form and can claim comparison with the systems of the great German philosophers of the time" (p. 139), is something that can be set against all that can be said both of the debt they owe to Kant and

their continual misunderstanding of him. With this criticism (if it is a criticism), I have nothing but praise for Dr. Wellek's work, which will have an interest for students of the literature of the period hardly less than it has for philosophers. There are singularly few misprints, but one might have expected an American University Press to have corrected the solecisms which here and there occur in the English of a foreign writer whose command of the language is otherwise remarkable.

J. H. MUIRHEAD.

Science and Human Experience. By HERBERT DINGLE, B.Sc. (London: Williams & Norgate, Ltd. 1931. Pp. 141. Price 6s. net.)

Professor Dingle has set out to determine the nature and scope of science in relation to human experience generally, and in doing so he has produced a very readable and stimulating book. He first suggests a definition of the scope of science and then traces in outline the gradual progress of physical science from the Middle Ages onwards. His definition is as follows: Science is "the recording, augmentation, and rational correlation of those elements of our experience which are actually or potentially common to all normal people" (p. 14). By experience he means "everything of which we are conscious except rational conceptions." It seems odd to leave out rational conceptions, or what Jung would call directed-thinking, and include fantasy-thinking, feelings and emotion. However, although the latter are included in "experience," they are ruled out of science by not being "common," and with regard to judgment in this respect "we must have regard to particular events and not to life as a whole." In this way he excludes the sense of beauty for instance, since, although common as a whole, there is no invariable agreement in particular instances. "Potential" experiences are those which are not actual only through accidental circumstances and not from inherent character.

Armed with this definition and its provisos, the author is able to develop a much broader view of the function of science in human affairs than would appear to be the case with his fellow astrophysicists, Eddington and Jeans, with whose ideas he is chiefly concerned. But when we are told that toothache "does not exist scientifically" (p. 129) merely because it is not a common experience (in a particular instance), we see that Professor Dingle's definition restricts the prosecution of science quite unnecessarily. We shall return to this point later.

A hypothesis, we are told on page 23, is proved true when verified by direct observation, and, further, such a verified hypothesis is said to "become a fact" (p. 45). Surely this is a serious confusion. The view that facts can never verify hypotheses, but only make their truth more probable, is much more universal and less open to criticism.

There follow some excellent chapters on the rise of scientific philosophies from Galileo and Newton, in which two important methods of science—abstraction and hypothesis—are amply illustrated. The theory of relativity is the extremity of abstraction, whereas the quantum theory is the extremity of hypothesis. The author's chief divergence from the views of Eddington and Jeans lies in his estimation of the value of the conceptual scheme of physics, for he regards it as valuable in linking up diverse elements of experience, whereas they regard it as in some sense "truer" than the world of experience. This difference lies at the root of two matters, in which, according

to the author, they have drawn invalid conclusions, the problem of measurement and the problem of determinism. The two chapters which deal with these subjects are not easily summarized, but it may be noted that Professor Dingle holds that with Eddington's over-emphasis of the metrical aspect of science, artists, theologians, metaphysicians and moralists are enticed into a fool's paradise, if they believe that they can escape from its challenge. We also agree with the statement with regard to determinism, that the physicists of the last century "unjustifiably foisted the characteristics of phenomena on atoms, and we are now witnessing the character of atoms being foisted on phenomena" (p. 88).

In the three final chapters the author puts forward some very interesting suggestions respecting the relation of science to art, criticism, and religion. He first of all illustrates the use of abstraction and hypothesis in art as well as in science, and then goes on to point out that in criticism the critic's task is "the correlation of common experience, which is precisely the task of the scientist" (p. 103). According to this view,

"The function of the critic is not to look for unmeaning absolute qualities, but to classify a work of art according to the generality of the relations which it will set up. The critic will distinguish different types of generality, such as those associated with particular places or times. He will not be precluded from taking account of particular relations, but he must note that they are particular. He will not be expected to abstain from considering historical or personal relations, which Arnold deprecated—indeed, he will be required to consider them—but he must note that they are historical or personal. What will be prohibited to him, however, is the statement that this is 'better' or 'worse' than that, except as a synonym for greater or less degree of generality of the same kind. Anything, in fact, which presupposes an absolute 'artistic value' in the object of his criticism will be outside his province; everything which indicates the character of the experiences which the work will arouse in the spectator will be legitimate material for his analysis" (p. 112).

With regard to religion, the over-restricted definition of science which we have already noted leads the author to conclusions which need a good deal of qualification, *e.g.*, "Science has nothing to say about holiness, sacredness, morality, or any part of experience of like character" (p. 121). It is hard to see why Professor Dingle insists on science only applying to experiences of normal people in common. Even if we look at a chair, no two people have exactly the same "experience": the concept of chairs arises by abstraction from a number of different experiences. Why, then, refuse recording, augmentation and rational correlation to toothache, an all-too-common experience of normal people? The reality of God, for instance, is said to be comparable with that of toothache, and further, "if anyone wishes to challenge the statement that God does not exist for Science, he must give instructions which anyone may follow and automatically receive an experience of God" (p. 129). Now, apart from a second serious confusion between God, a hypothesis, and toothache, a fact, the criterion concerning instruction is not essential to science. First of all, toothache, which the author does not admit to the realm of science, is obtainable from any dentist by request, and very often without; and, secondly, new stars which blaze up at unpredictable times in the sky are part of Professor Dingle's science, and yet instructions for their automatic observation are not possible.

However, the author's final conclusion is that the problem of science and religion is a psychological one, and will ultimately be resolved, "if at all, in the nature of the mind itself." He regards this as a possibility, which is

curious, since it can only come from *individual* psychology, and this is the portion of psychology to which he denies scientific status.

Philosophers, biologists, and psychologists will be grateful for this book as a sign of a gracious unbending towards them in astrophysical circles, which we hope will continue to grow.

G. B. Brown.

Some Dogmas of Religion. By John McTaggart Ellis McTaggart, Litt.D., Sometime Fellow and Lecturer of Trinity College in Cambridge. Second Edition. With an Introduction by C. D. Broad, Litt.D. (London: Edward Arnold. 1930. Pp. lii + 299. Price 6s.)

There are several reasons why the republication of this book, first printed in 1906, should be a matter for lively satisfaction to the philosophical public. It is, to quote Dr. Broad's Introduction, "the only one McTaggart wrote for the educated amateur as distinct from the trained philosophical specialist," and is therefore accessible to all who will make the effort to think downrightly and examine without prejudice problems concerning human destiny. In the thoroughness, acuteness, and directness of its discussions, and in the lucidity and simplicity of their expression, this study of McTaggart's is unsurpassed. If good apologetics are rare, assuredly good criticism of apologetics is no more plentiful. Its eminent sobriety and lack of the 'sensational' probably prevented the book from becoming a 'best-seller.' But its restraint and honesty may well secure for it in the future due recognition and the rank of a classic among its kind. The publishers are to be congratulated on having reprinted this volume of singular excellence—one which, too long out of print, sold in recent years for nearly as many pounds as the new issue costs in shillings.

McTaggart was an atheist. The reasons for his atheism are made clear in the present volume, and established even more firmly in his last work and masterpiece, *The Nature of Existence*. Yet he was thoroughly convinced of the importance of religion, so profoundly so, in fact, that it is no exaggeration to say that the conviction was, from first to last, his principal inspiration in the study of technical metaphysics. To say that his inspiration was religious, however, does not mean that its source lay in Christianity, or in any other of what he calls "traditional national religions": it was religious in the sense in which the inspiration of Plato, Spinoza, and Hegel was, and none of these accepted any traditional national religion.

McTaggart opens characteristically with a definition of Religion, and proceeds to argue that though religion is not dogma, there could be no religion without dogma, where by "dogma" he means a proposition which "has any metaphysical significance," or which "is taken as the ultimate truth about reality," no matter on what ground it be accepted. Dogmas are of supreme importance for our happiness, and the dependence of religion on them unfortunately "condemns religious questions to remain controversial and doubtful." Nor is the difficulty eased by any of the grounds commonly advanced for these dogmas; *e.g.*, immediate conviction, the generality of their acceptance, God's veracity, the bad consequences that would ensue from their falsity, the superiority of faith to reason. If they are ever to be proved at all, it can only be by metaphysics. And since no religion is justifiable unless it is based on metaphysics, it follows that "religion is justified for few people." Accordingly, we find McTaggart maintaining that metaphysics alone could supply arguments for immortality. And though he does not offer any such argument in this book, he does argue (chap. 3)—I think conclusively—that the objections customarily brought against immortality (based on suppositions about what

natural science establishes, or on "the perfectly gratuitous hypothesis" of the independent existence of matter) fail completely to disprove it.

McTaggart turns next to consider whether man is "free," and begins by showing how the question bristles with ambiguities. Three senses of "freedom" (*viz.*, those of "self-determination," "self-direction," and "self-realization") are compatible with determinism. The fourth, a meaning most often intended (*viz.*, "indetermination" or freedom to *will* as distinct from freedom to *act*), is examined more fully. Those who affirm it do so for one or both of two reasons: (i) because they have "a feeling of freedom"; (ii) because they hold that without this freedom moral obligation and punishment would be unjustifiable. McTaggart admits the feeling, but maintains that its existence is quite compatible with "self-direction," and so fails to establish indetermination. On (ii) he tries to show that (*a*) determinism *is* compatible with moral obligation and punishment, and (*b*) the view that determinism makes all choice absurd arises from confusing it with fatalism. Indeterminism is finally rejected because of its consequences, *viz.*, that it makes impossible of justification either moral judgments *about persons* (as distinct from their particular actions), or punishment, other than vindictive (and can justify even this only when it is administered simultaneously with the action). The late Dr. Rashdall declared this chapter "the most convincing argument against Indeterminism I have ever read"; strangely enough, Dr. Broad (*cf.* Introduction) finds it "very thin and wiredrawn." He also complains that in chapter 7, where the ascription of omnipotence to God is examined, McTaggart has little difficulty in making the doctrine look "entirely ridiculous," because omnipotence is interpreted to include the power of performing contradictions. Omnipotence in this sense, Broad adds, "has never been held by any theologian or philosopher of repute." (Here he forgets that Descartes, who was a philosopher "of repute," so interpreted it.) If McTaggart's destruction of this dogma is accomplished with little difficulty, it need not be because he has interpreted it in a way unfair to its assertors.[1] It seems that he did the only thing he could. Since the word omnipotence is used equivocally,[2] he rightly takes the wider meaning; for to be 'all-powerful' implies being 'very powerful,' but the latter does not imply the former. Thus under a single term, its assertors have advanced, in fact, not one but two hypotheses alternatively. Each of them should, therefore, be considered separately, as it is by McTaggart. I think there is more to the matter than Dr. Broad allows. Even were it true that (*a*) a universe without evil presupposes the laws of logic violated, and (*b*) this were enough to show that it cannot be God's duty to extirpate evil from the world, still, it would not be true that (*a*) and (*b*) *could* (or would) prevent God from *wishing* the evil absent.[3] It is usually held, and as being a

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[1] As McTaggart says (p. 219): "If God is to be taken as omnipotent, it is certain that all evil is not repugnant to his will; and if he is to be taken as not omnipotent, it is not certain that he is powerful enough to effect the predominance of good. The inaccurate use of the word omnipotence hides this dilemma."

[2] "When popular theology is pressed to reconcile the present existence of evil with the goodness of God, then it pleads that omnipotence does not mean omnipotent, but only very powerful. But when the sceptic has been crushed, and what is wanted is a belief in the future extinction of evil, then omnipotence slides back into its strict meaning, and it is triumphantly asserted that the cause which has an omnipotent God on its side must certainly win. The confusion is unintentional, no doubt, but it is dangerous" (*ibid*).

[3] "Even if there were any ground for believing that the absence of evil from the universe would violate such laws (the law of contradiction or of excluded middle), it is clear that a God that is bound by any laws is not omnipotent, since he cannot alter them. If it is said—as it may very reasonably be said—that these laws are so fundamental that it is unmeaning to speak of a being who is not bound by them, *the proper conclusion is not that an omnipotent God* is *bound by them, but that, if there is a God, he is not omnipotent* . . . it is not an unusual position to maintain that God is absolutely omnipotent, and, at the same time, to believe that there are certain things he cannot do, and even to be quite certain what these things are.

necessary consequence of the Fatherhood of God, that in his sympathy for us he *wishes* evil removed from the world. Now even if his omnipotence were not contradicted by his inability to *remove* the evil (and McTaggart holds that it is), surely it *is* contradicted by his *having wished* there were done something that remains undone—or, by his *having wished* that he himself *could* do something which he *cannot* do, and knows that he cannot do. That logical impossibility prevents God from doing what he *wishes* he could do (though he knows he cannot) seems to me plainly to show one limitation *of* his nature—one imposed *on* it and not *by* it—for his nature is *to wish* something impossible of realization. Dr. Broad does not meet this difficulty by pointing out that a more interesting or plausible sense of omnipotence than unlimited powerfulness is that of powerfulness limited only by logical possibility. The suggestion seems to *ignore* the difficulty and is therefore irrelevant.

To-day greater interest will probably centre in the next chapter, wherein McTaggart considers the existence of a God who, though not omnipotent, is yet very powerful. The possibility of such a God being creative or non-creative raises issues which most theists should find important, since few of them seem still to insist on omnipotence. (We cannot, of course, be sure that omnipotence may not come into favour again, so it is well to have had it threshed out.) The last chapter, on "Theism and Happiness," maintains that there is no reason for supposing our condition worse than it would be were Theism true. All his results, McTaggart points out, are negative, as they must be when not deduced from some positive metaphysical theory. (This positive supplementation came later, of course, in the *Nature of Existence*.)

With this book, in which the reasoning is so thorough and compact, its material of such absorbing interest, and the writing so simple and smooth, it is only too easy for a reader unwarned to let the eye pass from page to page without appreciating the full force, or the just point, of the arguments.

S. V. KEELING.

J. McT. E. McTaggart. By G. LOWES DICKINSON. With chapters by BASIL WILLIAMS and S. V. KEELING. (Cambridge: at the University Press. 1931. Pp. viii + 160. Price 6s.

This very attractive memoir of McTaggart by one of his oldest friends will be read with pleasure by all who are interested in McTaggart's philosophy and by many besides. It presents a picture of an extremely original and lovable man, who devoted his amazing intellectual powers to the attempt to establish by rigid deduction from self-evident premises a theory of the universe peculiarly characteristic of his own intellectual and emotional nature.

Much new and interesting information is given of McTaggart's early childhood, of his unique career as a schoolboy at Clifton, and of the two visits to New Zealand as a young man which played so important a part in his emotional life. Professor Basil Williams contributes a chapter on McTaggart's friendships, a vitally important factor in the life of a man for whom love was the fundamental link which binds the parts of the universe together. Mr. Keeling, who has the perhaps unique distinction of being a disciple of McTaggart, provides a brief exposition of the outlines of his philosophical system.

Speaking for myself, one new feature that emerges in McTaggart's character

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As against such a view as this it seems necessary to emphasize the tolerably obvious fact that if there is anything which God could not do *if he wished*, he is not omnipotent" (p. 217) (my italics).

is his great physical and moral courage. He was either naturally devoid of fear, or he had it completely under control from early boyhood. And he had an immense admiration for courage in others. "The best thing about Christ" (whom McTaggart admits that he "doesn't like much") "was his pluck at the Crucifixion" (p. 88). McTaggart's own last illness was an instance of cheerful and serene fortitude which impressed all those who beheld it. Another feature in his character which was unknown to me was his power of getting on friendly terms, without effort or condescension, with people of widely different social and intellectual status from himself.

There are two mistakes which I have noticed, and there is one supplementary remark that seems worth making. (1) On page 63 McTaggart is reported, on my authority, as having said that "every undergraduate should be compelled to satisfy his tutor that he has been drunk at least once a week as a guarantee of good faith that he is not a teetotaler." In this sentence the word *term* should be substituted for the word *week*, thereby converting a rather stupid and shocking remark into a characteristic bit of McTaggartian wit and wisdom. (2) On page 120, in the quotation from the letter of 1910 about creating doctors, the name *Lapsley* must be wrong. Mr. Lapsley, never having troubled to take a doctor's degree, is (and was *a fortiori* in 1910) incapable of playing the part assigned to him. I suggest that the late Professor *Langley* may be the person referred to in the letter. (3) On page 102 it is said that McTaggart "was particularly intrigued by Garnet's *Lady into Fox*, while frankly confessing his inability to understand what the author would be at." To this I can add the following odd bit of information: McTaggart, who was the least "shockable" of men, told me that he was profoundly shocked and disgusted by *Lady into Fox*, because of the suggestion of bestiality which seemed to him to run through it. One wonders whether many other readers put this interpretation on the story, and what proportion of those who did experienced the strong feeling of disgust which McTaggart confessed to have felt.

C. D. Broad.

Is Divine Existence Credible? By Norman Kemp Smith, Fellow of the Academy. Annual Philosophical Lecture. Henriette Hertz Trust. British Academy. 1931. (London: Humphrey Milford. 1931. Pp. 28. Price 1s. 6d.)

There is a sort of unwritten canon of reviewing, that the length of the review should be in some measure proportioned to the length of the book. In this case, however, it would result in small notice being given to a most valuable and interesting piece of reasoning. One may read 500 pages of solid argument on the subject of this lecture, and end with far less than Professor Kemp Smith has compressed into 28 pages. He has managed to deal in an original manner with a well-worn topic, to put his conclusions in an admirably clear and unambiguous way, and to pack all in tabloid form. For this, every student of philosophy owes him thanks mixed with wonder. *Si sic omnes!*

The earlier part of Professor Kemp Smith's argument deals with the Design argument, which is the most formidable of the theistic "proofs." He advances two objections to it. First, that it ignores the difference between the natural and the artificial, and secondly, that it leads to an anthropomorphic conception of God, in terms of attributes appropriate only to a created being. But "we do not possess even the beginnings of an understanding of creative activity." It defies any analogy drawn from the sort of

work we do. Omnipotence, for example, or omniscience presuppose conditions which no human experience manifests. So with the other attributes. "By no idealization of the creaturely can we transcend the creaturely." Professor Kemp Smith proceeds with an acute criticism of Hume and Kant, and a careful consideration of the difference, often ignored, of arguing from and to design. The Design argument presupposes God, but does not prove His existence.

So far, the process of the argument has been negative. The question of the title-page is answered in the affirmative, however, by asserting that divine existence is more than credible, it is immediately experienced. Professor Kemp Smith thus joins the many who declare that no inference will yield God, but that He is none the less revealed in direct experience. Two reasons are advanced for this. The one is that religion is found at the beginnings of civilization, and is not an attitude that arose out of any reasonings concerning experience. The reasoning comes later, to support the already existent belief. Further, the ultimate and essential characteristic of the divine is that of being the ground of reality, and thus other than creaturely, for if God is to be any more than a finite God, He must be, despite His relation with man, something wholly other than creaturely. For this reason, we who are created cannot comprehend the nature of God in terms of the finite nature we possess. Knowledge of God is not inferential, but immediate, for only in such experience can we in any way have acquaintance with a God whose innermost nature is that of an infinite uncreated Being.

This is, of course, far from being a full exposition of Theism. It is necessarily limited to one main issue. Even if there is not a large measure of agreement with Professor Kemp Smith among some of those who will read this, there can be no two opinions as to the excellence of this altogether admirable essay, and its stimulating and informative character. One hopes the author will return to amplify the subject in some work in the near future.

E. S. Waterhouse.

The Rôle of Logical Form in Propositions about Existence. By Stanley B Reid. University of California Publications in Philosophy, Vol. XII No. 4. (University of California Press, Berkeley. 1931. Pp. 225–300, Price $1.)

This work is a study of "some of the characters of inference as shown by the characters of propositions which are implicatively connected." "The objective references, or simply the aboutness of inferential judgments, may serve to denote the subject of the discussion."

The discussion is in five sections. In I, "Phrases and Characterization," clearness is sought in "regard to what we mean by the proposition and what its relation is to assertion . . . and to fact." The proposition (1) "has its characteristic composition resolvable into the substantive and the adjective"; (2) is "assertion on its structural side"; (3) "possesses objective reference which is the relation of . . . accordance with some fact when the proposition is true, and discordance when it is false." When assertion "blends" with a proposition the result is a judgment. The proposition is about what the judgment is about. The proposition "means the object thought about." "The proposition is intrinsically symbolical that is denotative."

In II, "Propositions and Inferences," the following points are maintained: (1) p implies q means q can be inferred from p. (2) I infer *a has* ϕ from *a has* ψ because I know that everything that has ϕ has ψ. (3) *Everything that has* ϕ

has ψ and p (say, *a has ϕ*) *implies q* (say, *a has ψ*) are both propositions involving the attitude of characterization and the assertive attribute. (4) The real distinctions between the so-called characterizing judgment and the inferential judgment are the following: (*a*) the former are experentially certified, the latter formally; (*b*) the former is a proposition about propositions, the latter not; (*c*) the adjective in the latter involves always the predicate *implies*, while the adjective in the former never does.

III. The characterizing theory of Truth represented by Johnson is based upon the reality of relations and of otherness.

IV. The Coherence Theory of Bradley is based upon the unreality of relations and of otherness. Bradley uses "true" in two ways. In the first a judgment is true if it is accordant with conditions, *e.g.*, space and time. In the second a judgment is true only if it gives "philosophical insight and real verity."

In V the effects of these divergent metaphysical assumptions on Johnson's and Bradley's theories of inference are considered.

This book is interesting mainly as an example of how philosophy should not be done. It may well be that each of Mr. Reid's sentences expresses a fact; but a large proportion of them I at least am unable to understand in just the way in which I am unable to understand Arabic; and almost all of them fail to increase the clearness with which I see the logical structure of the world. What is the use of saying with Johnson that every proposition consists of a substantive and adjective, thus neglecting the difference in structure between *Henry is happy* and *Henry is glad that Albert loves Amelia?* Of course, whenever I express a proposition I say something about something. It does not take a philosopher to see that. Mr. Reid's claims about the distinction between so-called characterizing judgments and Implicative judgments are true of *Entailment*, though not as he also suggests of *Material Implication.*

Mr. Reid makes, I think, one suggestion of value, viz., that one proposition implies another (no attempt, of course, is made to distinguish one sense of 'implies' from another) because of a necessary relation between the predicates (universals) in each, *e.g.*, *This is red* entails *This is extended*, because, as McTaggart puts it (*Nature of Existence*, p. 111), *red* intrinsically determines *extended.*

JOHN WISDOM.

La Mentalité Primitive. By L. LÉVY-BRUHL. The Herbert Spencer Lecture, delivered at Oxford, May 29, 1931. (Oxford: at the Clarendon Press. 1931. Pp. 27. Price 2s.)

"Are differences between the mentality of primitive societies and that of our own to be explained simply by diversity of race, of traditions, of environment, etc., or is there a mentality properly primitive, so distinct from our own that our psychology and logic are insufficient to explain it, and one which in consequence should form the object of a special study?" To the first part of this question the Herbert Spencer lecturer returns a negative answer, to the latter part an affirmative one. This affirmation, however, is often erroneously interpreted as the contention that there are two species of human minds—'ours' which think conformably with logical principles, 'others' (primitive minds) which do not. "It cannot be doubted for a moment that the fundamental structure of mind is everywhere identical." But in spite of this identity of mental structure, the ways of thinking among certain primitive peoples differs from ours to such a degree that they cannot be

accounted for by modes of thinking that have been slowly formed by centuries of intellectual activity, or expressed in languages fashioned by Aristotelian logic.

In one respect the world of experience of 'savage' peoples is poorer than ours, in another it is richer and more complex. For them, there is no such thing as a *purely* physical fact. Though they distinguish what we call 'natural' from what we call 'supernatural,' occurrences of the former kind are not so separated from those of the latter as to be referred to a different order. The supernatural is constantly intervening in nature; the daily round of miracles is a banality. By them "the primitive man is moved, sometimes terrified, but seldom surprised." Surrounded by invisible and supernatural influences, it is on these that the success of his every undertaking, his happiness and misfortune, depends at every moment. Though, like us, he feels the need of explaining unexpected natural occurrences, unlike us, his first interrogation is *which* of these influences is manifesting itself and how may it be conciliated. He is well enough aware of certain natural uniformities: perceiving a lowering sky, like us, he predicts rain. Death, though for him never a 'natural' occurrence, is not denied by him to be *due* to a 'natural' occurrence (*e.g.*, wounding by arrow or lance), but this natural antecedent is only secondary and instrumental. The 'real' cause is neither arrow nor archer, but the will of the sorcerer whose preconceived plan the archer realizes. Were these aborigines metaphysicians they would be all Occasionalists! Occurrences are therefore revelations and signs. Likewise in hunting and warfare, the traps, skill, courage, strength are necessary but not sufficient conditions of success. Their very language prevents an interpretation of their meaning in straightforward naturalistic terms, for they have no expression exactly corresponding to our 'nature,' 'body,' 'matter,' nor for what we designate by 'immaterial' and 'spiritual.' This mentality may be called pre-logical, not in the sense of being alogical or anti-logical, but to mean that it does not bind itself from first to last to avoid contradiction. Primitive peoples admit and assert without difficulty what we find logically impossible or absurd. Though their thinking normally conforms with the principle of contradiction, on occasion it conforms with another principle—"the law of participation"—which (incomprehensibly for us) takes precedence over the former. This fact is remarkably constant in 'inferior societies.' Objects or phenomena can at once be themselves and be something other. Affirmation of one alternative in our familiar oppositions between 'one and many,' 'same and other,' etc., does not, for them, necessitate denial of the correlative. If we try to make precise what these ways of thinking and feeling have in common with our own by inference from these data alone, the attempt stops short with nothing of interest beyond the data themselves. If, however, we admit the structural identity of all human minds, and restrict investigation to the characteristics proper to primitive mentality, facts that till now were ill- or mis-understood, may well come to receive adequate explanation. And Professor Lévy-Bruhl suggests that the study of this mentality, conceptual to so slight a degree, would be "of incomparable assistance for enabling us to understand how human thought in the Orient, and later in Greece, came, little by little, to be intellectualized and to produce its first sciences and first philosophies."

Nor is there a definite cleavage between this mentality and that of modern 'civilized societies.' In every human mind, whatever has been its intellectual development, there subsists a *fond indéracinable*. "That this will ever disappear or weaken beyond a certain point is neither probable nor desirable. For with it, poetry, art, metaphysics, invention in the sciences—all that makes the beauty and grandeur in life, would perhaps disappear too." This fascinating

aperçu raises the highest expectations of excellence in Professor Lévy-Bruhl's recent and fuller study, *Le Surnaturel et la Nature dans la Mentalité primitive*.

S. V. KEELING.

La teoria delle passioni di Davide Hume. By GALVANO DELLA VOLPE. (Bologna: L. Cappelli. 1931. Pp. 44.)

Léon Brunschvicq. By CLETO CARBONARA. (Naples: Francesco Perella. 1931. Pp. 72. Price 8 lire.)

Lo svolgimento del pensiero di Giuseppe de Maistre. By GIORGIO CANDELORO. (Rome: Tipografia del Senato. 1931. Price 10 lire.)

Cicerone e l'etica stoica nel libro III del "De Finibus." By FLAVIANA MOSCARINI. (*Ibid.* 1930.)

The first of these Italian pamphlets is a closely reasoned study of Book II of Hume's *Treatise*, which the author values as not an introduction to but an integral and important part of the ethical system of the third book. Hume's analysis of the "passions" and his view of their function in the moral life are appreciatively examined and compared with the views of both the Sentimental school (Shaftesbury and Hutcheson) and the Continental school of rationalists (Descartes and Spinoza), to both of which Hume is preferred. Particular emphasis is laid on Hume's exposition of sympathy as a natural tendency to feel as others feel, that is, as neither a feeling *for* others nor a mere contemplation of their feelings.

The philosophy of M. Brunschvicq, distinguished by its emphasis on mathematics and the history of thought, has been waiting for an expositor. Signor Carbonara's account, partly systematic and partly genetic and enriched with a liberal bibliography (including an apparently complete list of the subject's writings), will be acceptable to students of contemporary French philosophy. The author writes habitually in the language of neo-idealism, which many readers will follow with difficulty. The pamphlet is a reprint of a series of articles contributed to *Logos* (XII, xii, xiv, XIII, i, ii, iii).

Signor Candeloro's monograph on the Savoyard Joseph de Maistre (1754–1821) is more likely to interest the philosophical student of history than the student of the history of philosophy. De Maistre's revulsion from the French Revolution led him to attack the profane philosophies that helped to bring it about. He traced all these to the Reformation, and proclaimed Roman Catholicism as the only basis of a reconstruction of thought and life. The monograph is an historical account of the stages of De Maistre's reflections, with some indications of his influence on men like Gioberti, Comte, and Saint-Simon.

The author of the fourth pamphlet, reviewing the work of modern scholars on the philosophical writings of Cicero, finds two defects: firstly, excessive pre-occupation with the problem of Cicero's Greek sources; secondly, arbitrary conjecture in the solving of this problem. Underlying these defects, we are told, is the supposition that Cicero was a mere compiler, adding nothing of his own to his sources. This supposition is challenged by Signor Moscarini. Regarding the exact determination of Cicero's sources as an impossibility, he examines Book III of the *De Officiis* with the immediate object of discovering its author's methods of composition, and the ultimate object of assessing his worth as an aid to the understanding of Greek Stoicism. His conclusion on the latter point is vague; on the former he concludes that Cicero's practicality as a Roman, his love of ordered speech and symmetrical thought, his

eclecticism, and the superficiality of his philosophical attainments, would have a considerable influence on his treatment of his sources.

T. E. Jessop.

The Psychology of a Primitive People. By S. D. Porteus. (London: Edward Arnold & Co. 1931. Pp. xv + 438. Price 30s.)

Professor Porteus, of the University of Hawaii, spent the summer (the Antarctic winter) of 1929, at first in Dampier Land, a barren area in the extreme North-West of Australia, and thereafter at the Hermannsburg Mission in the Central deserts, with the primary object of subjecting the natives to psychological tests of the experimental order. Incidentally he studied their mental habits as reflected in their everyday life; and more especially in the Centre, where he had the classical researches of Spencer and Gillen—not to speak of the work of the Rev. Carl Strehlow—to help him, he had occasion to observe in the more or less tamed specimens and occasionally in genuine wild-folk the effects, uniformly disastrous, of the interplay of our civilization with a stone-age type of culture. For the rest, he has a turn for vivid description and sketches with a sure hand the appalling solitudes amongst which a branch of mankind has managed to build up a mode of existence impervious to the attacks of Nature, if not, unfortunately, to those of rivals of the same species. Indeed, the literary charm matches the scientific interest of a work which deserves unstinted praise for its fresh and direct handling of a rapidly closing chapter of human history.

Only the last quarter of the volume is occupied with the results of the intelligence tests, and, to be quite frank, they would seem to prove very little if taken strictly by themselves. The author, however, to do him justice, would be the first to recognize the slenderness of his gleanings, having a just sense of the difficulties of method that must be surmounted when mental tests are applied outside our own civilization. Thus not only must such tests be independent of the use of a common language, but, if the most backward savages are to be compared with Europeans in respect to their congenital endowment of sheer brain power, none of the cultural acquisitions in regard to which the civilized man has the advantage of greater familiarity, such as the arts of drawing, counting, and so on, can provide the examiner with an apparatus equally fair to all parties. Even relative speed in solving a problem cannot be taken into account, since primitive people are not accustomed to work against the clock, and, again, easily succumb to boredom when set to tasks that have no appreciable value for themselves. It is, however, all to his credit that, though realizing from the first the troubles that lay ahead, Professor Porteus should have planned and carried through what may truly be rated a pioneer experiment as regards this special branch of psychological science. It is for his brother experts to say how valuable his findings are—whether such value as is to be attributed to intelligence tests in general can likewise be claimed for the fruits of such anthropological field-work with all its practical disadvantages in the way of laboratory conditions. Certain it is in the meantime that anthropologists are none too satisfied with the physical criteria whereby they attempt to distinguish and arrange in some sort of evolutionary scale the racial traits of mankind; while for working purposes at the present time these hardly include any psychophysical clues at all that can be trusted. Yet the man in the street who has rubbed shoulders with individuals of other breeds firmly believes that, inwardly no less than outwardly, they belong to different types, such as,

moreover, are by no means on a par as regards capacity for the civilization that is well on its way to become a world-wide institution. If, then, there is any truth in the popular view, it ought to be within the competence of Science to bring it out by means of some system of objective measurement. In the meantime it may be doubted whether Professor Porteus' final estimate to the effect that "they are not unintelligent, but are certainly inadaptable to a civilized environment" can in any sense be regarded as the outcome of his statistics, unless prudence and planning capacity, in which the aborigines show themselves, if the tests are to be trusted, hardly if at all inferior to white, are less important for civilized life than rote-memory and sheer speed of performance.

It would be scarcely in point here to examine the value of the rest of this book regarded as a contribution to Cultural Anthropology as such. The part relating to the North is rather thin in this respect owing to a complete lack of good authorities whose lead might be followed; whereas the Centre, on the contrary, so far at least as the Arunta are concerned, has already yielded up most of its secrets, so that late comers into this field must rely more on their reading than on their first-hand observations if they are to do justice to a culture that is virtually dead and done for. They may still be able to buy for their museums more or less authentic specimens of the ceremonial objects that were once the veritable shrines of the tribal spirit, but the fact that their owners are willing to part with them at the price of a little flour or tobacco is overwhelming proof that the glory has departed. Professor Porteus, however, can be congratulated on having throughout made the most of his opportunities, with the result that his book must go into the none-too-well-filled shelf allotted to really sound observations on aboriginal life in Australia.

R. R. MARETT.

A World of Epitomizations : A Study in the Philosophy of the Sciences. By GEORGE PERRIGO CONGER, Ph.D., Associate Professor of Philosophy, University of Minnesota. (Princeton: University Press, and London: Humphrey Milford. 1931. Pp. xiv + 605. Price $5; 22s. 6d.)

The object of Dr. Conger's massive book is to offer "a synthesis of the data of the sciences, as these appear at the time of writing." Such a synthesis requires to be founded on some regulating principle; and Dr. Conger finds one in "the hypothesis of repetition of patterns, or epitomization." According to this there are three existent "realms," the "cosmogonic" (*i.e.* physical), the "biotic," and the "neuropsychological." In each of these realms there are nine levels, and the things in one level have analogies and relations not only with the other things in the same realm, but also with things at the same level in another realm. Thus the ninth "cosmogonic" level—the whole physical universe—resembles the ninth "biotic" level—the Earth's total population—and the things in the ninth "neuropsychological" level—individual minds. What these relations and analogies are is not made at all clear: large numbers of abstract nouns are used very vaguely; evolution, for example, is taken sometimes as a temporal process and sometimes as something non-temporal. Dr. Conger illustrates his twenty-seven sorts of levels by producing twenty-seven sorts of facts; on the subject upon which alone I am competent to judge—the "cosmogonic" realm—he has read widely and has digested hardly anything that he has read. The second half of the book extends the epitomization hypothesis backwards to deal with another three realms—those of logic,

of number, and of geometry-kinematics. These three "constitute realms prior to and leading in orderly fashion up to matter, life and mind." Alas! Dr. Conger is able to find only eight levels in the logical realm, and only five in the numerical and geometric-kinematical realms. Since Dr. Conger is utterly unaware of the distinctive features of logic and mathematics, everything he says on these subjects is worthless. Dr. Conger's "synthetic or synoptic naturalism," *a priori* where it should be empirical and empirical where it should be *a priori*, is of no philosophical interest; and his exposition of it, interspersed as it is with facts and quotations of every degree of relevance, is too confused and turgid to have any literary value.

R. B. Braithwaite.

Genetic Principles in Medicine and Social Science. By Lancelot Hogben, M.A., D.Sc. (London: Williams & Norgate, Ltd. 1931. Pp. 230. Price 15s.

Writers on genetics in relation to human affairs are usually more abundantly supplied with missionary zeal than with scientific curiosity. Consequently such scraps of information as we may possess in this field are not submitted to any very searching criticism so long as they can be cited in favour of the views which the author wishes to urge upon his readers in his anxiety for the betterment of mankind. This procedure only impresses readers who share the author's zeal. On a more critical public it has the effect of discrediting the whole movement. The above book by Professor L. T. Hogben is of quite a different character. The enthusiasms he has displayed in other writings are here successfully held in check, and we are given a much juster estimate both of the difficulties as well as of the achievements of human genetics than the common run of such books would lead us to expect. What distinguishes this author's treatment from that of most others is his far clearer appreciation of the *logical* aspects of these problems, and his deliberate consideration of the technique of interpretation. As Professor Hogben himself says: "Writers on human genetics have hitherto devoted very little attention to the requirements of a rigorous treatment of genetically determined conditions." This being the case, it is not surprising that our definite information on these topics should be so meagre, and that the exposition of the requirements of a "rigorous treatment" should form the most valuable feature of the above book.

The book is hardly an elementary one, but presupposes a knowledge of the general principles of modern genetics. Nor is it a systematic treatise. In addition to discussing the technique of interpretation of the data furnished by such sources as twinning, serology, and pathology, there is an excellent chapter discussing the bearings of genetical theory on the concept of race as employed in taxonomic biology. It is to be hoped that this chapter will encourage anthropologists to reflect a little on the logic of their own procedure.

The most curious feature of this book which will strike a reader of the same author's *Nature of Living Matter*, and the one which will most amuse philosophical readers, is the contrast between the author's attitude towards deductive reasoning and its relation to natural scientific theory in the two books. In the earlier work deductive reasoning was covered with ridicule and abuse. In *Genetic Principles* the same author shows an admirable grasp of its real significance, and it is just this feature which places his work on a plane far above most others of its kind. This paradox is explained when we

find that it is correlated with another difference between the two works. *Genetic Principles* is guided by genuine scientific curiosity and uses the apparatus of reason. *The Nature of Living Matter* is chiefly inspired by the zeal to convert, and uses with great skill the weapons of propaganda.

J. H. WOODGER.

The Modern Theme. By JOSE ORTEGA Y GASSET. (London: The C. W. Daniel Co. 1931. Pp. 152. Price 6s.)

Although Professor Ortega is probably the most accomplished of living Spanish philosophers, and has for many years been widely known on the Continent, he is scarcely known at all here. The above book is the first of his to be translated into English. The translator deserves the highest praise for his version, which is clear, sensitive, and beautiful, in every respect like an admirable original composition in our own tongue.

The "modern theme," the pre-occupation and contribution of our generation, is emphasis on life as "vital sensibility," as spontaneous and autonomous energy. At the moment this energy is in rebellion against the incubus of the past: we are present at a strife between the dynamism of raw life and the dead weight of embalmed culture. The problem of the generation is the effective solution of this conflict. Professor Ortega is concerned to warn us against solving the conflict crassly by allowing either side to overwhelm the other. If culture were to win we should have what he calls Rationalism. This puts life into bondage. The standards that reason has evolved in science, morals, law, and religion are here separated from the needs that called them forth, acquire an independent value, and exact the obsequious homage of their creators. Instead of continuing in the service of life, they subordinate life to themselves. "It is illogical to guillotine a prince and replace him by a principle. The latter, no less than the former, places life under an absolute autocracy." On the other hand, the victory of raw life would be equally unfortunate. Energy has its intrinsic value; sport is an instance, for sport is activity for activity's own sake, and work would be more valuable if we treated it as sport instead of evaluating it, as our recent elders did, solely in terms of its products. But life, if only because it is social, needs discipline, and reason is life's own disciplinary factor; and we must not forget either that cultural standards or ideals are generated by life as modes of adjustment to the conditions of living, or that those same ideals, besides this biological justification, have another value proper to themselves. The victory of life alone would be Relativism, the contraction of standards to merely pragmatic validity, and thus the degradation of thinking to a practical function. The effective solution must retain both life and culture, and it must do so by means of the notion of perspective. Each of us (and similarly each generation), in virtue of his individuality, sees, feels, and acts from a peculiar viewpoint, but each viewpoint is not only right in itself, but compatible and conciliable with all others. Here the author points us to the theory of relativity in physics, which, he rightly insists, is not merely the denial of an absolute viewpoint, but both a discovery of the multiplicity of possible viewpoints and a declaration of the way in which all these may be synthesized in an absolute *system*.

These considerations may seem a little obvious, but they are worked out with an originality and brilliance that bring surprise and delight in every page. The author's philosophical competence and literary power show themselves in the details, and it is for this reason that they cannot be brought out in a short review. At every point he is either provocative or illuminating.

He is a modern Plato, with an important difference. He has the same clarity of insight into human nature, the same passion to unite speculation and life which makes him prophet as well as philosopher, the same rich knowledge that makes allusion easy and effective, and the same rich imagination that vivifies almost every line with suggestive metaphor. The difference is that he refuses to try to confine contemplation to abstractions or to reduce life to austerities.

The book consists of a brief course of lectures on the philosophy of history delivered in his own university, and one can only envy the students who can sit at the feet of such a teacher.

T. E. JESSOP.

The Laws of Human Nature. By RAYMOND H. WHEELER, Ph.D. Contemporary Library of Psychology. (London: Nisbet & Co., and Cambridge University Press. 1931. Pp. 232. Price 5s. net.)

"Begin with the whole and always refer everything back to it." This is the cardinal principle which Dr. Wheeler's book commends, and in the light of which the laws of human nature are to be sought. It has already shown its power in the hands of the *Gestalt* school, which is "the outstanding psychological movement of the century" (p. 47). In other fields, simultaneously, the conviction has been growing that Nature can only be understood organismically, and "no one field, no one group of persons, is responsible. It . . . is a matter of cultural development in human evolution" (p. 51).

"The resistance to the new logic," however, "is terrific" (p. 66). This is due to traditional common-sense ideas about matter and mind traceable to seventeenth-century philosophy (p. 17) and to modes of thinking with a long history based on atomistic assumptions (pp. 41 f.). Hence have arisen associationism, mechanism and vitalism, and the enigmatic dualism of body and mind. Even psychologists like James Ward have not escaped these fallacies, and have made "serious but abortive" attempts to "avoid the absurdities of building up a whole from its parts" (p. 44).

If we are to escape from the contradictions and impossibilities which these theories leave on our hands, we must adopt the organismic view of Nature which modern Science, with the assistance of Philosophy, is disclosing, and set out from a "new descriptive unit . . . the organic whole, recognized not as a problem but as a solution" (p. 62). Nature, at once organic and dynamic, is that whole. Energy is basic everywhere, and the same energy that makes a falling apple "seek" the centre of the earth makes a human being desire and think and will. The laws of human nature, then, are the laws of dynamics formulated so as to bring out their organic implications.

Of these laws, Dr. Wheeler selects eight, as follows:—

(1) The law of field properties, or, a whole is more than the sum of its parts. (2) Parts derive their properties from the whole. (3) The whole conditions the activities of its parts. (4) Parts emerge from wholes through processes of differentiation and integration. (5) Wholes evolve as wholes. (6) The law of least action. (7) The law of maximum work. (8) The principle of configuration. Add to these the postulate of a Growth Potential whose energy is released in the growth or "maturation" of the individual, and we have the main principles with which the author works.

If it be objected that human nature has special laws, *e.g.* a law of goal-seeking, Dr. Wheeler's discussion of the law of least action would try to persuade us that there is also goal-seeking in the fall of an apple which is

responding to its future, the centre of the earth, and that man's goal-seekings, being responses to his future, are the same in kind. When such difficulties are raised, he says, "Take care! It is easy to fall back into the dualistic and mechanistic trap" (p. 105). For himself, he remains true to his first principle in his highly interesting applications of the laws in the spheres of Biological Organization, Perception, Learning, Emotion and Will, as well as Personality as a whole. Among the most striking of these discussions are those on Learning and Memory.

The current psychology of Learning, with its processes of trial and error, repetition and practice, and so on, can be simplified, he thinks, without loss of adequacy by regarding Learning as maturation of insight resulting from the Growth Potential which gives rise to the stresses we call interests and motives. Instinct is an unnecessary conception, as there is no fundamental difference between the instinctive and the acquired, both being instances of maturation (pp. 141 f.). "If the psychology of learning is revolutionary, the psychology of memory will seem even more so" (p. 166). Memory does not depend upon "traces," not even in the more refined form of "patterns" (p. 168). On the part of the organism, traces and patterns are replaced by maturation, which "conditions the general aspects of experience, the degree of its differentiation" (p. 168). The stimulus-pattern, which leads to a recall, apparently carries its own completion and its own space-time indications with it, by means of which the fresh perception which it evokes locates it in its setting in the past (pp. 166 f.). The author's account of memory is somewhat obscure and may easily have been misunderstood. As it stands, it raises many questions, and leaves room for wonder whether there is not some element of truth in the association doctrine which is being neglected.

Space will not permit more than a mere reference to the treatment of the Will, but the author claims that the new standpoint "straightens out the tangle of determinism *versus* freedom" (p. 197), and makes the Will an intelligible concept.

The concluding chapter is on Personality. The energic theory here finds much akin to itself in modern psychology, and often the same language is natural to both. A certain freshness, however, is given to familiar material by the manner in which it is shown to illustrate the eight laws, and the new climate of thought is revealed in such phrases as "personality . . . is a field property of the individual's total behaviour" (p. 213).

The book, like the series to which it belongs, is intended for the general reader. It is, on the whole, lucid and sufficiently untechnical for those acquainted with the modern scientific outlook. The organismic principle is shown to be a powerful weapon of criticism, and the author uses it with considerable effect against Behaviourism and Mechanism. Its constructive power also is shown to be full of promise, and if the bold use that is here made of it does not always carry conviction, it will, at all events, inspire keen debate on the chief problems that perplex Psychology to-day.

A. E. Elder.

Chemical Embryology. By Joseph Needham. (London: Cambridge University Press. 1931. 3 vols. Pp. li + 2021. 15 Plates and 532 Illustrations in the text. Price 105s. net.)

This is truly a *magnum opus*. It is, first of all, a compilation of practically all the known results of the physical-chemical investigations of embryogenic processes, and it is written by a worker who has himself contributed notably

to those results. It is not scientifically pedantic: there are over 200 pages on the history of the subject; there are full discussions of the theoretical and speculative bearings of the data, and there is a particularly interesting "Epilogomena" of great general interest.

The book may be regarded as formally initiating a new department of biological research which seeks to penetrate into that region where our interest in life-process culminates, and where one sees "the slowly gathering twilight close in utter night." In the development of the individual organism we see physical simplicity grow into structural, functional, and mental complexity —how, we have, as yet, no knowledge. In these processes are the keys to a description of organic evolution and to mastery over the ultimate future of the human race. It is only during the last generation or so that experimental biology has sought to understand these processes—and to dare to utilize them. For several hundreds of years (indeed, since the time of Aristotle) anatomists and microscopists have observed and delineated the structural changes that occur as the egg and embryo differentiate; but now the chemist has begun to investigate these mysterious processes, and presently, by the employment of techniques of which we have little idea, success must come.

When that success has been achieved, says Mr. Needham, the biologist will have, in his cabinet, bottles of "master-catalysts" which will enable him to control and modify at will the embryogenies of the organisms which he may deal with, and, perhaps, to initiate life-processes in physical systems that we now call inorganic ones. And yet the past of organic evolution is to be described: when there were no biochemists with their master-catalysts and when these agencies came into existence (?) "of themselves." That seems to be another problem, and one wonders if it will succumb to the methods of chemical embryology.

JAS. JOHNSTONE.

The Great Amphibium. Four lectures on the position of religion in a world dominated by science. By JOSEPH NEEDHAM. (London: Student Christian Movement Press. 1931. Pp. 180. Price 6s. net.)

In these essays (three of which have already been published) Mr. Needham deals with religion and science. The first one deals with the vanishing religious phase of Western civilization. The second shows up the inadequacy of any attempts to treat scientific problems so as to leave room for "traditional theological and philosophical doctrines." The third deals with "biology as a field of contrast between Aristotle and Plato": it is, in effect, a discussion of the failure of such conceptions as "entelechy" and "organization" in current biological speculation. Like the walls of Jericho, these fortifications of vitalism are expected to crumble before the "trumpets of mathematical physics." The fourth lecture is about the religion (such as it is) of the scientific worker. They are pleasantly written, but are not intended to be serious contributions to the subjects with which they deal.

JAS. JOHNSTONE.

Biology and Mankind. By S. A. MCDOWALL, B.D. (London: Cambridge University Press. 1931. Pp. xviii + 229. 47 illustrations. Price 6s. net.)

This book represents, in part, a scientific educational experiment made at Winchester College. It is really a plainly written, conventional account of theories of evolution, of the problem of the transmission of acquired characters,

of Mendelism, of inheritance in man, and of inheritance in its relations to social and political problems. The book is not at all philosophical. It is rather propagandist, and it rightly insists on the vast importance of a knowledge of biology as a qualification for statesmen and administrators. The propaganda is conventional: we are over-breeding from the biologically worst and under-breeding from the biologically best parts of our population. Our socially inferior classes are also our biologically inferior ones. Our "ablest germ-plasm" moves upwards (socially), so that it tends towards the House of Lords. There is an increasing proportion of unemployables (because of their bad heredity) among the unemployed, and that such would be the case was a "common topic of discussion among biologists long before 1910." (It seems too good to be true!) Mr. McDowall has little faith in social reform that involves the betterment of human environment—it is human heredity that ought to be improved. How? Not in any indirect or subtle way, but by the obvious method of sexual sterilization carried out with the consent of those who are to be convinced that they are biologically inferior!

Mr. McDowall's book is attractively written and illustrated, and is an excellent introduction to those aspects of biology that have public interest. It can cordially be recommended.

JAS. JOHNSTONE.

The Bodhisattva Doctrine in Buddhist Sanskrit Literature. By HAR DAYAL. Ph.D., M.A. (London: Kegan Paul, Trench, Trübner & Co., Ltd. 1932, Pp xx + 392. Price 18s.)

This work has the qualities and a few of the defects of a successful thesis, not by a callow youth, but by a more mature student. Namely, it covers fresh and as yet scarcely trodden soil; hence it is a contribution to little charted knowledge and a valuable mine of reference. It opens up works to us which only an expert in Sanskrit can read; it reveals much careful industry. On the other hand, it is in some respects, as are practically all new theses, a premature publication (pressed forward, it may be, during temporary residence, near printer and publisher); a good deal of work was yet needed in a more historical selection of references, and, indeed, in a more leisured study of the earlier sources, which are drawn from, to show historical development in those sources. Where this has been hurried, as the present work now and then shows, those older workers, to whom the author at the outset makes grateful acknowledgment, may rather ruefully hope that certain very positive judgments, referring to their fields of research, may not be held to have been endorsed, much less suggested by their "helpful criticism." Where opportunity is given, as in this case it was not, my advice is always that a thesis, be it never so successful, should be treated like new wine, and held back from the market awhile. If the author be a man in the upward way of coming-to-be, he will not be long before he sees immaturity unseen before, and sets about to bring his bantling up to his own higher stature.

Pending the future publication of maturer work by Mr. Dayal, we have much reason to be grateful to him for the expository part of this highly meritorious study. We have an analysis of the curious term *bodhi-sattva*, usually rendered 'wisdom-being,' or 'enlightenment-being,' an inquiry into the causes of its superseding, in Mahāyānist Buddhism, the *arahan* (or *arahat*), itself a theory unknown to the original teaching; we then have doctrines associated with the *bodhisattva* theory, and a chapter, which should have come perhaps earlier, showing the Hīnayāna (or 'Southern Buddhist') doctrine of

Gotama Śakyamuni (long afterwards called 'Buddha'), as Bodhisattva, not after, but during his last life on earth. I say 'earlier,' because, in tracing the causes of the bodhisattva theory, the 'Bodhisat' of the Hīnayāna thesaurus of stories, called Jātaka, is left out. Now the Jātaka, before it took its present form in writing, had been told in free form for centuries, and this would appear to make possible that, in Hīnayāna, the idea of an immature 'Buddha' as 'Bodhisat' was influenced by the contemporary development of the Mahāyānist doctrine. On the other hand, the older Pali Suttas also make Gotama speak of himself as having been, in his last earth-life, a Bodhisat. Hence the complication arises of the Mahāyānist doctrine as having arisen not later than the fixed form assumed finally by the Sutta scriptures.

Graver for me is the omission, from the developing causes, of the all-important waning out of the man-entity in the earlier decadence of Buddhism. Mr. Dayal says, "Personality secures the triumph of a religious movement" (p. 33). With this I agree; but it must be a personality who survives death. 'Buddha' and 'arahan' survived death in a way entirely nugatory for the votary, save as *the idea* of what they had been, or would be were they still man. As a present help in trouble they are logically non-existent; they cannot be prayed to save with inconsistency. Mahāyānism, as its iconography shows, revived (i) the consummate Man in a deified Buddha, and (ii) the man who was nearing that consummation as lively, living Man seeking to save the more backward brother-Man. Buddhism had rejected the Indian concept of the Man, and its expansion as taught by its Founder: the man who in potentiality is, but who is more truly described as not 'is,' but 'becoming.' The Bodhisattva doctrine was a new rehabilitation of that rejected teaching.

C. A. F. Rhys Davids.

Hume's Philosophy of Human Nature. By John Laird, M.A., Regius Professor of Moral Philosophy at the University of Aberdeen. (London: Methuen & Co., Ltd. 1932. Pp. ix + 310. Price 12s. 6d.)

The study of Hume's philosophy has suffered much in the past from the interested motives of his interpreters. Militant rationalists, relishing his attacks on orthodox religion, and standing in dire need of an eminent prophet, recast him in their own image, concealing both his scepticism and his phenomenalism. General historians of philosophy, interested, as usual, in a philosopher's influence rather than in his intentions, and aware of Hume's cardinal importance in the transition from the Cartesian to the Kantian epoch, have fastened exclusively on this historical rôle, and have slurred both his reservations and his hints of a constructive policy. It is high time that Hume received the individual attention which his greatness deserves; and, fortunately, there are many signs that this is now beginning to be understood.

As an example of the dispassionate historical method, as well as for its intrinsic merits, Professor Laird's book is greatly to be welcomed. It adheres staunchly to its evident intention of replacing Hume in his own environment and letting him speak for himself. It may perhaps best be described as an expository running commentary on the *Treatise of Human Nature*, illustrated by apt and frequent quotations, judiciously buttressed by references to other works where, as in the case of religion, the *Treatise* fails to indicate Hume's full position, and luminously prodigal of allusion to Hume's possible sources. In this last matter, Professor Laird's discriminating industry lays all future students of Hume under a lasting obligation. Especially interesting

is the revelation of Hume's regard for Cicero, his persistent indebtedness to Bayle's *Dictionary*, and his close acquaintance with the works of Malebranche. Professor Laird's researches on the last issue prove, once for all, the enormous influence of Malebranche on the philosophy of the eighteenth century, and show how thoroughly disintegrating and favourable, in the long run, to the growth of scepticism that influence was.

Professor Laird's title is well chosen, for, given Hume's premisses, the only possible study of mankind is man. Accepting as he does the view which Professor Laird entitles "sensory phenomenalism," *i.e.* that it is impossible to look beyond appearances, and that all appearances are either sensations or derived from sensations, he can discuss other problems only hrough the medium of human apprehension. Both his naturalism and his scepticism are disguises worn by his humanism.

This capital point is well brought out by Professor Laird as he traces Hume's progress from "impressions" (*i.e.* sensations) to "ideas" (*i.e.* images), and from ideas to the association between them which prevents them from falling into "utter and obvious chaos"; and it lends a background to the more detailed studies which ensue. The first of these concerns the association of particulars, in which connection he points out Hume's inconsistent open-mindedness, which admits reasons for the association prior to the association itself, and at the same time attributes it to mere "custom." This question-begging epithet, intended to describe the psychological process in which the sense of constancy is added to any given association, is interpreted by Professor Laird, in one of the terse illuminating phrases which distinguish his work, as "horse-sense expectation."

Passing over the chapter on space and time, in which Professor Laird deals faithfully with one of the admitted weak links in Hume's argument, we pass to the chapter on causality. Causality was all-important for Hume because it is the only recognized form of relation which threatens to "go beyond what is immediately present to the senses." It is the very centre of his philosophy, and the treatment accorded to it is therefore the acid test of his commentators. Professor Laird rises to the occasion with a pellucid analysis of a notoriously roundabout argument, and he follows it up with some excellent comment under separate headings. His account has the supreme merit of not reading history backwards. In spite of the temptation which the Hume-Kant theme presents, he alludes to Kant only twice in sixty pages, and then only casually.

It is possible that this virtuous resolve leads Professor Laird to underestimate the extent to which Hume, in his statement of the causal problem, did actually anticipate his great successor. He rightly suspects (as Hume came to do himself) that "vivacity" is not a sufficient explanation of the authority wielded by the imagination in producing the feeling of necessary conjunction, and he notes Hume's reference to the "general and more established principles" of the imaginative "understanding"; but he tends to regard allusions to the imagination as a constructive agency as merely inconsistent with Hume's original atomism, rather than as a means of escape from it, or as a tentative basis for a new and less ambitious system, for which his rational *reductio ad absurdum* of "reason" has paved the way. Hume does say that the imagination has "universal principles, which render it, in some measure, uniform with itself in all times and places." Perhaps this interpretation of "imagination" is one-sided; but since Mr. Hendel's chapter on the subject it has been much canvassed; and though Professor Laird's study of the text is far too close and accurate to omit all reference to the passages which suggest it, he nowhere faces the issue in set terms. Perhaps it is his

evident desire to avoid rash speculation which prevents him from attempting a final estimate. Dare it be said that he has followed too closely his subject's admonition to "restrain the intemperate desire of searching into causes"?

The same problem (which may be described as that of the sceptic *versus* the humanistic naturalist) intrudes itself into the excellent chapters on "Bodies and Minds" and "Nature and Scepticism." Hume did not hold that the external world and personal identity were illusions. He merely showed that reason could not demonstrate them, and his general attitude was "so much the worse for reason." The sceptic in Hume is the visible shadow of the latent metaphysician, straining after the older type of objective certainty. As the metaphysician was slowly strangled with the rope of his own argument, Hume's temper becomes less sceptical, as he is more ready to accept as reasonable the "horse-sense" workings of the "imagination." Thus it is that his scepticism, simply by being true to itself, passes over into his naturalism. Professor Laird is entirely right in asserting that there is no serious conflict between them; but his intense sobriety restrains him from exploring their inner connection.

But no differences of judgment should be allowed to obscure Professor Laird's real achievement in these three central chapters. For the close student of the *Treatise* they are absolutely indispensable. Their historical background is careful and scholarly, and they frequently confront the reader with subtleties in the text which a broad review is only too apt to ignore. They also contain excellent analyses of Hume's actual arguments, which it is fatally easy to forget in the interest attaching to his conclusions. Except for audacity, they have all the virtues.

The chapters on psychology and ethics are terse and cogent. In particular, the interplay of intuitionist and utilitarian elements in Hume's moral theory is admirably studied, and the parallel between Hume's attitude with regard to reason in ethics and epistemology respectively is thoroughly sustained. The exaggeration of the oft-quoted statement that "reason is, and ought to be, the slave of the passions" is successfully exposed with characteristic felicity of expression when it is suggested that Hume really thought of reason as "an astute family solicitor." A brief review of Hume's achievements in political and economic theory, in history, and in literary criticism, successfully rounds off a sympathetic account of Hume's varied interests as an eighteenth-century man of letters.

Hume's attitude to religion is discussed in the last chapter, which resumes the various hints on this subject dropped throughout the book. As Professor Laird points out, Hume did not "abolish knowledge to make room for faith." As against belief in miracles and free-will, he maintained an intransigeant doctrine of causal uniformity which, though founded on an appeal to experience, is as far as possible from making the reservations which, on Hume's own showing, an appeal to experience should imply. Certainly, for practical polemical purposes, the new causality is as binding as the old. But the *Dialogues Concerning Natural Religion* reveal a certain indecision. While the orthodox dogmatism of Demea is laughed out of court, there is a division of sympathy between the sceptical negations of Philo and the attitude of unproved reasonable faith defended by Cleanthes. Professor Laird refuses to decide the issue, though he inclines to believe that Philo is "much the largest part of Hume." The narrator, Pamphilus, inclines to Cleanthes. The issue will depend on the point we have already discussed, namely, how far Hume's attack on "reason" left him a complete sceptic, and how far he was prepared to accept "nature" and "feeling" as reasonable authorities in its place. Here, as elsewhere, Professor Laird stresses the sceptic.

The work as a whole is persuasively written, with considerable charm of style and a pervasive sense of humour. Professor Laird has made a valuable contribution to the history of philosophy, and indeed to the whole realm of scholarship.

A. Boyce Gibson.

Prolegomena to a New Metaphysic. By Thomas Whittaker. (London: Cambridge University Press. 1931. Pp. 120. Price 5s.)

This book consists of a discursive series of remarks on the history and prospects of metaphysical speculation. It is an interesting and stimulating work, and contains a number of suggestions very well worth considering. The principal criticism I should bring against it is that the author has failed to arrange his material in a sufficiently coherent and orderly manner. The work is indeed rather a "hodge-podge," with little clear connection between its different topics and no systematic plan obvious to the reader. Mr. Whittaker seems to be influenced particularly by Plato and Leibniz, and hopes with their help to arrive at a new view of reality which might roughly be described as one of the teleological type; but I must say, without disparaging its author, that the present work is too slight to serve even as a prolegomenon to such an ambitious enterprise, though I hasten to add that from my reading of the book I think such a sequel might be well worth study, and that the present volume is a sound piece of metaphysical work except for its unsatisfactory arrangement, and, considering its small size, contains many points of value and interest. The philosophy expounded is on the whole "idealist" in character, but its idealism lacks adequate justification. A reviewer is also bound to point out that it is unfair to speak of Pragmatism as though it meant by "working" practical success in the narrower sense of the term; but perhaps the criticism is not to be taken very seriously as an attack on the school, since the author says (p. 3): "Among philosophers I know as little where to look for a pure pragmatist as the pragmatists themselves profess to know where to look for pure truth." At any rate, the book shows a certain degree of superficiality in dealing with such problems, but perhaps this is rendered inevitable by its brevity. You cannot expect a thorough metaphysics in a little over 100 pages, and the book makes a good introduction to the problems of ultimate reality.

A. C. Ewing.

The Taproot of Religion and its Fruitage. By Charles F. Sanders. (New York: The Macmillan Co. 1931. Pp. viii + 266. Price 10s. net.)

Mr. Sanders is Professor of Philosophy at Gettysburg College, and this book is a further reminder that there is an awakening of religious interest in American as in English colleges. The worst part of the book is the title. The "taproot" turns out to be "the aspiring nature of human personality." It is possible to agree, or to think this is another indication of the American temperament and pragmatic outlook, but most of us will prefer to speak of more than one root, and to regard the deepest roots as lying in man's sense of the "numinous." Be that as it may, Mr. Sanders has produced a book much more readable than are many essays of this type, and has the art of quotation well developed, for most of what he quotes is both pointed and unhackneyed. Mr. Sanders has no new heresy to advocate, or old dogma to defend. He wants to make clear that religion is and must be assessed as a

permanent human reaction, an inevitable attitude to life. He discusses the mystical and rational aspects of religion, its relation to science and the mechanical conception of things, and also to metaphysics, whilst the final chapters deal with its institutional form in the Church and its place in civilization. It is a book well suited to the general reader, to University students whose idea of religion is gained, as more often than not it is, from the incoherent mixture of Biblical stories and moral prohibitions, that was dealt out to them in childhood as religion. To such, this book, with its broad outlook, untechnical style, and wide sympathies, will be extremely useful. It will indicate the permanent values of religion, whilst avoiding those perversities which spoil so many otherwise earnest and well-meaning attempts to interest youth in the religious aspect of life.

E. S. WATERHOUSE.

A Manual of Greek Mathematics. By Sir THOMAS HEATH, K.C.B., K.C.V.O., F.R.S., Sc.D. (London: Oxford Clarendon Press (Humphrey Milford). 1931. Pp. 568. Price 15s.)

The history of science becomes more and more popular among philosophers and scientists alike. There is a growing feeling that without a thorough knowledge of the past, the lofty structure of science and the interpretation of its value and meaning, are necessarily inadequate and incomplete. Besides, the subject itself is so attractive and inspiring, that reasons for the revival of scientific history are not difficult to find. Among the pioneers in this direction, Sir Thomas Heath deserves the gratitude of all scholars, whose studies are made easier by his works. The *Manual of Greek Mathematics*, of course, has not the range of the details of the author's earlier *History*, but it fulfils magnificently his purpose, which is to supply the general reader with an accurate and pleasantly written exposition of the development of Greek mathematics, illustrating the scientific debt which we owe to the Greeks, and explaining the terms and methods which they have initiated and which have become part and flesh of our scientific inheritance and of our mathematical reading. The book begins with a short exposition of Babylonian and Egyptian mathematics and of the Greek system of numeration. Part I is devoted to the development of mathematics from Thales to Euclid, an elementary period which does not necessitate any advanced knowledge of mathematics. The second part of the book deals with the remarkable theories of Euclid's successors: the discovery and complete investigation of conic sections; the labours of Archimedes who anticipated the integral calculus; the beginnings of trigonometry and algebra; the foundations of mechanics and the astronomy of Hipparchus and Ptolemy—treated in a scholarly and yet appropriately easy fashion. The most remarkable additions made by the author to the details of his earlier work are those concerning Egyptian mathematics. The information contained in the Rhind Papyrus and the Moscow Papyrus have helped the author to improve on this subject, and he has also availed himself of certain ancient mathematical texts recently published, to supplement his exposition of Babylonian mathematics.

We do not propose here to discuss controversial details referring to Greek mathematics, but rather to show why, in our opinion, the study of Greek mathematics is indispensable for a correct interpretation of Greek philosophy. It is known that the early Greek thinkers were not only philosophers and social reformers, politicians and soldiers, engineers and traders, but also mathematicians and physicists—a fact which suggests a special conception of the unity of knowledge. Indeed, the teaching of the Pythagoreans, the

Academy, and the Lyceum, had a universal character, though some members of these schools specialized in particular branches of learning. It was not until the time of the Alexandrians that the various sciences were really differentiated and studied independently. These considerations point to the necessity of a unitarian conception of Greek thought, illustrating the fact that, in the Greek mind, the growth of mathematical ideas was intimately interwoven with the stitches of philosophy proper. Indeed, at a time when the particular sciences were in their infancy, it seems natural that all knowledge should be regarded as one. There is, however, a more technical consideration which might be put forward. We believe that the early Greek thinkers used mathematics almost unconsciously, as a kind of logic. In attempting to give a rational explanation of the world, they had to use mathematics, which was the only systematic knowledge that could supply the rational element of the explanation. In the absence of logic, of a mental organon which could account for the conceptual transformation of the data of experience, and for their coherent combinations into universal systems, the only abstract instrument they could use for the purpose was mathematics.

Thus we find that the primitiveness of the mathematical ideas of the early Greek thinkers corresponds to the lack of cohesion in the details of their philosophy. Mathematics, which was just raised to the rank of abstract knowledge, was not yet organized enough to allow Thales to give a greater consistency to his system. And so it was with Anaximander. With Anaximenes, however, we observe that the idea of quantity, which is implied in his doctrine of rarefaction and condensation, acted as a cohesive element in his views. And so, with the Pythagoreans, the development of mathematics enabled their various doctrines to reach a remarkable unity embracing not only their rational conceptions, but also their religious ideas and their practical actions. The case of the Pythagoreans is the more interesting in this respect, as the breakdown of their universal system was due to a mathematical discovery, namely, the discovery of the irrationals which destroyed the balance between reason and experience.

Platonic philosophy appears, then, as an attempt to save reason without rejecting experience altogether. Plato had to widen the concept of science in order to absorb the irrationals into his synthesis. If mathematics could not explain itself, it was somewhere beyond that the ultimate principles of things were to be found. With mathematics as a starting-point, dialectic could ascend up to the eternal world of Ideas. In criticizing the hypotheses of mathematics, Plato prepared the birth of logic. But the mathematical character of Plato's philosophy appears not only in this connection, but also in his final exposition of his theory of Ideas and also in his cosmological conceptions. This remarkable vision carried with it, however, the very principle of its destruction. If Plato was able to indicate the necessity and the possibility of a science of the sciences, he could not establish it independently: mathematics was always clinging on the wings of his genius. So it was due to Aristotle to elaborate this organon out of the substance of mathematics, which was thus reduced to its proper place as a special application of the science of thought to numbers and figures. But if this change in its value caused mathematics to loose the spectacular place it occupied in philosophy, yet it did not prevent it from remaining an essential element in the final elaboration of Aristotle's system. On the other hand, the establishment of logic made possible the differentiation of the various sciences, the condition of their development being found henceforth in logic alone. With Aristotle, philosophy became simply logical, and it was not until Descartes that we find once more a complete philosophical system of a mathematical type. Nevertheless, the extraordinary development of

mathematics during the Alexandrian period paved the way for the revival of mathematical learning in the Renaissance; so that a close study of this remarkable period of Greek mathematics should facilitate the understanding of the work initiated by Leonardo da Vinci, Galileo, Vieta, and Fermat, who prepared the way for the all-embracing syntheses of the seventeenth and eighteenth centuries.

These and other similar thoughts are suggested to the philosopher when reading the interesting *Manual of Greek Mathematics*. The value of this new work of Sir Thomas Heath will be thus acknowledged by all those who devote their efforts to the study and the advancement of the mental sciences.

THOMAS GREENWOOD.

Cope: Master Naturalist. The Life and Letters of Edward Drinker Cope, with a bibliography of his writings classified by subjects. By HENRY FAIRFIELD OSBORN, Senior Geologist United States Geological Survey, etc. Illustrated by CHARLES R. KNIGHT. (Princeton, N.J.: University Press. London: Humphrey Milford, Oxford University Press. 1931. Pp. 756. Price 22s. 6d.; $5.00).

American biography and the history of natural science are both distinctly enriched by the publication of this extensive and really adequate Life of one of the new country's and of the world's greatest naturalists and natural philosophers. The idiosyncratic quality, variety, and abundance of the subject's genius is captured and exhibited for the reader with remarkable skill and gratifying success. The book is the outgrowth of years of knowledge and experience, and behind it there lies a uniquely suitable background of familiarity alike with Cope and the fields of his labours. A labour of love, with extreme care and fine tact, it reveals the man—largely through his correspondence; also by happy and just characterizations and personal reminiscences. It is a balanced book, well systematized and picturesquely descriptive, frank and personal, sympathetic yet impartial, containing a vast store of technical information as a guide to the student, and many highly readable pages of dramatic narrative as well as quotations of the brilliant sallies of Cope himself. The preparation of the work, which is the first and only comprehensive biography of its subject, has been painstaking, co-operative, and its inclusiveness on the whole is all that could be desired.

Cope's letters, from the age of six until the last fortnight of his life, are among the most highly entertaining and instructive letters of English literature. They are very revealing of the mind of the man, his private reactions and inner hopes, his intellectual and spiritual development, no less than of the important circumstances of his environment, which throw no little light on conditions prevailing in America over a long period before and after the Civil War (1840–1897). Cope's English contacts, his two European visits, and his first impressions of European, and especially of English life, are most interesting.

Scientifically and technically, Cope ranks as one of the greatest of his country and time as a zoologist, geologist, vertebrate palæontologist, and comparative anatomist. He named and described many hundreds, possibly thousands, of new species, genera, families, orders and varieties, and other subordinate or intermediate groups of fossils and living vertebrates. In biology he was a Lamarckian. His work was admired by Darwin, who quoted him in each of his three most original and important books dealing with animal life and human evolution.

This naturalist's interests were extended in many directions, especially in anthropology, sociology, education, philosophy and religion. He was widely read in philosophy, including metaphysics, and recognized a place for religion "in the heart." He was born, reared, and educated a Quaker—a birthright member of the American Orthodox Society of Friends. He passed through many phases of religious experience and intellectual adjustment, resigning from Meeting after his father's death. He was thus a "come-outer" in religion, as in some respects in morals, which he endeavoured to give a natural basis, founded upon the sciences of biology and human life as we find it. Yet his early Quakerism continued to affect his manner, and coloured his sentiment and his thought, possibly even his biological philosophy. The mixture of mechanics, energetics, and "psychics," so to speak; the emphasis on consciousness and its deliverances; the transcendentalism of his developed biological philosophy; no less than his attitude towards people, his family and loved ones, and towards the ultimate problems of life and destiny, and the Great Spirit of the universe; also towards Christian Churches generally, would suggest and confirm this view.

It is desirable that a wider public should know more of this man now so effectively and charmingly commemorated by his distinguished friend Dr. Osborn.

WILLIAM HARPER DAVIS.

Education. By T. RAYMONT. (London: Longmans, Green & Co. 1931. Pp. xi + 337. Price 7s. 6d.)

Mr. Raymont's *Principles of Education* has long been a standard textbook; but in the twenty-seven years that have passed since it was written the science of education has made great strides, and the author has therefore published this book "as supplementing rather than as entirely superseding the old one." His aim has been to give a general survey of the subject; it is, as he says, "an attempt to prevent myself, and to prevent others, from getting into that mental condition regarding education which is figured as being unable to see the wood for the trees." In this attempt Mr. Raymont has been eminently successful. No one who reads this book will fail to know what education is all about; it provides an answer to, or rather it enables one to think clearly about, all those questions that so frequently crop up when education is discussed. To two classes of readers it will be particularly useful: to the interested layman, who wants to know the results rather than the methods of educational experiment, and to the professional student at the beginning of his course—since it will give him a chart by which he can steer his way through the difficult seas ahead. For both these classes Mr Raymont's sane and balanced treatment is especially appropriate. Take, for example, the admirable chapters "Can Education be Defined?" and "Is Theory Useless?" the very titles of which indicate their freedom from dogmatism. A few sentences will illustrate the clarity with which Mr. Raymont explains a point that puzzles many worthy people: "A good way of seeing the shortcomings of self-expression as an educational aim is to bring it into contrast with self-realization. The two terms are often confused, with results disastrous to clear thinking. The term 'self' means different things in the two cases. There is all the difference between my 'self' as I unhappily know it, and my 'self' as I would have it to be. It is the real concrete self that one knows, and perhaps does battle with day by day, which many people mean when they talk about self-expression. It is an ideal self—that

which one desires to be in one's moments of deepest wisdom and insight—which philosophers mean when they talk about self-realization." A straightforward statement like that removes many misconceptions.

In a broad survey various topics must necessarily be omitted. Thus, in his chapter on examinations there might have been some account of the scholastic tests of attainment (other than the American type of "objective" examination which asks for shreds and patches of a subject, and which Mr. Raymont rightly condemns); and one would have liked to see brought out clearly the distinction between the School Certificate and Matriculation, since their present confusion lies at the root of much evil in secondary schools. The experiments on transfer of training are ably summarized; but nothing is said of the emotional side, which the experimenters, for the sake of isolating the cognitive factors, deliberately left out. Yet to neglect the power of "sentiments" falsifies the whole problem, and leads to results that are merely incredible. While there is an excellent discussion of the place of vocational education, one would hope to see in a second edition some account of vocational guidance, which is already becoming an important concern of educational science, and in which the recent London investigation (carried out by the National Institute of Industrial Psychology) marks an epoch. There is, by the way, one quaint misprint on p. 202, "*Civic*" for "Conic" Sections; and Dr. Norwood's initials on p. 237 have gone astray. It will, however, be obvious that these are very minor criticisms of a most delightful and valuable book.

F. A. CAVENAGH.

Friedrich Nietzsche. By G. B. FOSTER, late Professor of the Philosophy of Religion in the University of Chicago. Edited by C. W. Reese. Introduction by A. E. Haydon. (New York: The Macmillan Co. 1931. Pp. xvi + 250. Price 10s. 6d.)

America is a continent of strange contrasts. It may comfort some people to know that the home of "fundamentalism" also counted in the ranks of its theologians at least one disciple of Nietzsche, namely, the author of the book under review. G. B. Foster (1858–1918) was ordained to the Baptist Ministry in 1879; became pastor at Saratoga Springs, New York, in 1887; studied in the Universities of Göttingen and Berlin in 1891, 1892; was made Professor of Systematic Theology in the University of Chicago in 1897, and Professor of Comparative Religion in 1905. Some of his publications, we are informed by the editor, "shook the very foundations of orthodoxy and contributed in a large way to the present humanistic trend in religion." The "humanism" for which Foster stood was that which would make "the man-agency take the place of the god-agency" in the direction of at least the affairs of men. This humanism, coupled with the naturalism to which it is allied, served as a bond between Foster and Nietzsche. "Both men," writes Professor Haydon, "made the pilgrimage out of orthodoxy, unable to find rest on any plateau of compromise until they set their feet upon the adventurous and uncharted path of pure naturalism." This humanistic and naturalistic tendency found expression in Foster's protest against certain theologico-philosophical postulates. "Must we know that values last for ever before we will create them? A value is good while it lasts. Life is good even though it may not last for ever."

During the troubled years of the Great War the name of Nietzsche was constantly maligned, because his real views were misunderstood. In 1915 the present reviewer gave a short course of public lectures at University College,

London, in order to dissipate the misrepresentations of Nietzsche which seemed so dear to German militarists and British and other journalists. Those lectures were published in book form in 1916 as *The Philosophy of Nietzsche* (new edition 1924, Allen & Unwin). It pleases me to think that my London lectures may have suggested the idea of Professor Foster's Chicago course on Nietzsche. He certainly knew my *Philosophy of Nietzsche*, for he quoted from it in his lectures. Anyway, he delivered such lectures during the war years. And his lectures were not merely an *exposition* of Nietzsche's *Weltanschauung* (which was the sole object of the London lectures), but an *advocacy* of some of its fundamental doctrines. Whether Professor Foster really intended to publish these lectures is not clear. But he died in 1918, and it was only through the devotion of some friends and admirers that the present volume was printed in 1931. It is a welcome addition to the scanty Nietzsche literature in English. In fifteen short chapters it gives a readable account of the life of Nietzsche, his relation to Schopenhauer and Wagner, his attitude towards feminism, the state, militarism, democracy, science, art, morality, scepticism, religion, Jesus, atheism and the superman. If it contains nothing very original or fresh, it is certainly lucid, accurate, and stimulating. It brings out the author's "sense of the worth, the greatness of Nietzsche," whether or no one agrees with the author's view that "the world needs him as never before," and that Nietzsche's "religion is the religion of life, of beauty, of strength, and must not perish from the earth."

The editorial work, one must reluctantly say, is not satisfactory. Many misprints disfigure the book, and no references are given for the numerous quotations in the book. In fact, some passages in the book appear to be quotations, although there is no indication of the fact (cf., *e.g.*, pp. 195 ff. with my *Philosophy of Nietzsche*, pp. 48 ff.). Presumably the MS. did not give the exact references, possibly because the author did not think of publishing the lectures. There is also no index. It is to be hoped that these defects will be remedied if and when a new edition is called for.

A. Wolf.

The Psychology of Children's Drawings. By Helga Eng. (London: Kegan Paul, Trench, Trübner & Co. 1931. Pp. viii + 223. Price 12s. 6d. net.)

In the *Psychology of Children's Drawings* Eng has succeeded in writing a book which is of serious scientific value and at the same time interesting and attractive to a very wide public. It is primarily a book for the student of child psychology, but anyone interested in children or in art will enjoy reading it. The first section of the book gives a detailed account of the drawing activities of the writer's niece from her first to her eighth year. This is followed by a general account of the development and psychology of children's drawings, with references to a wide range of authorities. The last section suggests analogies between the child's development in drawing and in other fields, and also between children's art and primitive art.

Eng gives numerous illustrations of her niece's drawings from the first stroke at ten months of age through various forms of scribble, wavy, circular, and variegated, to formalized drawing, which is illustrated at various levels up to eight years of age. As Margaret had no brothers and sisters, and was not taught to draw, this series of illustrations forms a very valuable record, even though there would inevitably be some outside influence from the drawings made by adults for her and from pictures. The illustrations are accompanied by a running commentary, in which the author analyses the

characteristics of the different drawings and directs attention to the successive stages in development.

In the second section, which deals with the subject of children's drawings in general, Eng includes illustrations from the work of other writers, and also material from the work of children in the elementary schools in Oslo. This section includes several discussions of interest to the student of child psychology. We will take as the first example the question of the rôles of imitation and of the desire for movement, respectively, in the development of the child's drawing activities. As against some writers who emphasize the importance of these in the development of drawing, Eng maintains: "It is true that the instinct of imitation is alone sufficient to explain the child's commencing to draw, but it does not explain the interest and the persistence with which the child continues its drawing for months and years without external stimulation or request. Scribbling has also an affective element; the child takes delight in the monotonous play of lines and movement, and this feeling applies both to the sense impressions and to the movement" (p. 102). Another feature of children's drawing which Eng discusses is the tendency to juxtapose elements without regard to their proper orientation. The reasons which she suggests for this tendency have special interest in relation to Piaget's theory of it as derivative from childish ego-centrism. One other example of the interest of Eng's findings for the child psychologist may be taken from her account of the way in which, during the years before five years of age anyway, an achievement may be evanescent. It may be lost for a period and the child's drawing consequently degenerate. She says, "Altogether, the first concepts of a child are quite generally characterized by great uncertainty, and this also appears to be the fate of the first formalised drawing" (p. 110).

This very brief sampling must serve to give an idea of the problems discussed in the second section of the book. In the third section the writer makes an excursion into notoriously difficult and controversial matters. She quotes various authorities on the analogy between the art of primitive man and of children. Having given some weight to the negative evidence, she comes back to the view that there is a resemblance between the oldest paleolithic art and children's drawings. She reproduces examples of the two side by side and says: "The only difference between them is, as usual, that the child draws human beings, the Stone Age artist animals. But otherwise both drawings have exactly the same character. In both the heads are the best executed, the body lines are only indicated incompletely; in both, figures are placed one over the other and woven together in a tangle of lines going in all directions without any definite orientation" (p. 202). To the reviewer the only statement in this comparison that seems justified is that one figure is placed over the other in the drawings of both children and primitives. The primitive's work is a unity with expression and character, whereas the child's is a muddle of incoherent lines, and there is no comparison between the one possible head in it and the very characteristic poses of heads in the primitive adult's.

The whole question of the analogy between the child and the primitive is very difficult, and one on which it is almost impossible to secure crucial evidence. In view of this difficulty it is to be regretted that Eng commits herself to very sweeping generalizations with regard to the analogy: "The unquestioned parallels which can be shown between the drawing of primitive man and that of children—formalism, transparency, turning-over, spacelessness, want of synthesis—are based on features common to the psyche of the child and primitive man, on the want of firm voluntary attention, of penetrating analysis and higher synthesis, on the weakness of the power of

abstraction and of logical and realistic thinking" (p. 213). In connection with this generalization Eng refers to Lévy Bruhl. The controversy to which Lévy Bruhl's view of primitive mind has given rise is a sufficient warning against taking any pronouncements on this subject as final.

Apart from the doubt which Eng's treatment of this admittedly very controversial subject raises, the book is a very valuable contribution to the subject of child psychology, both for its wealth of material and for its discussion of theoretical problems.

VICTORIA HAZLITT.

The Approach to Philosophy. By J. F. WOLFENDEN. (London: Edward Arnold & Co. 1932. Pp. 236. Price 7s. 6d.)

This book has grown out of a course of lectures which the author delivered at Oxford to beginners in philosophy. It does not claim any originality, but it may be useful to those who wish to know "what philosophy is all about." The argument starts from a notion of philosophy as the criticism of the postulates of the sciences. It then appears that philosophy must itself have a sure foundation which is not merely postulated, and this is discovered in *cogito*. The question of the relation between the subject and object of knowledge is introduced next, and the greater portion of the book is occupied with the exposition of various views on epistemology, although in two chapters on "Purpose" and on "Willing" there is some discussion of the problems of moral philosophy. It is perhaps inevitable that in an introduction to philosophy the antithesis of Realism and Idealism should be presented in a fashion which will displease someone, and it seems likely that many good Realists will object to Mr. Wolfenden's identification of Realism with Materialism (p. 56). However, some great philosophers (mostly those who call themselves Idealists) have believed in the identification, and Mr. Wolfenden is not to blame for the lamentable confusion which has been brought into philosophy with the words Idealism and Realism. The book is written with a pleasing enthusiasm which should add to its value as an introductory work.

W. C. KNEALE.

A Challenge to Neurasthenia. By DORIS MARY ARMITAGE. (London: Williams & Norgate, Ltd. 1931. Pp. 64. Price 1s. 6d. paper, 2s. 6d. cloth.)

This brightly written little book is a patient's record of the treatment of neurasthenia given by the late Dr. Barnes, of Whitwell, Herts, and it is published in the belief that such a successful method should be more widely known and used. The writer's aim being practical, she does not give a systematic account of the Doctor's psychological views nor of his theory of the etiology of neurasthenia, but limits herself to a description of the actual treatment This was mainly concerned with the banishing of abnormal fear which the Doctor held to lie at the root of the trouble. In this process he is revealed as a very skilful tactician who taught his patients that victory lay in finding and holding on by facts in face of which their fear-produced illusions could not stand. He relied little, if at all, upon deep analysis, and his therapy appears to have achieved its successes by rational persuasion. His manner of reasoning with patients, which showed humour and a fine gift for creating phrases of "arrowy vitality," is very happily illustrated in this book, and is one of its most valuable features. The method, however, is maintained to be independent of the Doctor, and in some cases patients might apply it successfully themselves.

It is hoped that this book may come into the hands of neurasthenics and their friends, as it might help the former on to the road of recovery, and, an almost equally great service, it might give the latter an insight into this disability which is often made worse by the thoughtless opinion that it is merely make-believe.

A. E. ELDER.

The Sciences of Man in the Making. By E. A. KIRKPATRICK. (London: Kegan Paul, Trench, Trübner & Co. 1932. Pp. xv + 396. Price 15s. net.)

This is called "an orientation book," and it is intended as a guide to the study of man in general. It deals with the following subjects: Scientific Method, Human Origin and Evolution, Anthropology and Ethnology, Physiology and Hygiene, Eugenics and Euthenics (which means improving the race by improving its environment) Economics and Political Science, Behaviourism and Individual Psychology, Social Psychology and Sociology, Education, Religion, Morality and Ethical Living. Each chapter has, as appendices, bibliographies and "Selected Researches." The books mentioned are, almost entirely, the works of American writers, and the selected researches are extracts from the *Scientific Monthly*, or are snippets from other journals. Obviously (when we consider the wide range of the book) the treatment is slight: it is very like a course of W.E.A. lectures. But it is good, being well written and balanced, and there must be many readers who will enjoy reading it and will obtain guidance as to what constitutes the proper study of mankind.

JAS. JOHNSTONE.

Religion, Morals, and the Intellect. By F. E. POLLARD, M.A. Introductory Note by H. G. Wood, M.A. (London: Allen & Unwin Ltd. 1932. Pp. 182. Price 5s. net.)

Mr. Pollard's title strikes one as a trifle ambitious for the modest little volume it introduces. It could include all the problems of God, man, and the universe. Actually it affords us fifteen short essays on a variety of topics, with a broad religious interest unifying them. Apparently, the author is a member of the Society of Friends, as their standpoint is much in evidence. In some cases this seems to have influenced his judgment, as in the chapter on rites and symbols, where he has hardly appreciated the psychological function of symbolism in the process of imagination, and is inclined to think of symbols as "fond things vainly invented," rather than as an expression that is inevitable in the functioning of our minds. Again, one wonders whether we do need "a rehabilitation of morality upon a rational basis." The history of rationalism in Ethics, whether it has been that of Spinoza, Kant, or even Clarke's celebrated doctrine of "the fitness of things," has not proved very promising for such an attempt. If, as Westermarck insists, moral judgments have emotional roots, a rational basis for morals will not carry us far. The highest type of morality is often found in acts of heroism, which no rational considerations can justify. Similarly, Mr. Pollard's plea in the closing chapter for a reasonable religion, even though one could hardly oppose it with a demand for an unreasonable one, leaves a certain questioning whether if the "numinous" be really the root of religion, any religion can be characterized at last resort as reasonable. Possibly, however, the fact that Mr. Pollard's book provoked a number of critical reactions

is one reason why the reviewer found it interesting; and whatever differences there may be regarding the argument, the tone and temper of Mr. Pollard's writing are unexceptionable, and there is a quiet competence in handling the issues involved which calls for respect and admiration.

E. S. WATERHOUSE.

Whitehead's Philosophy of Organism. By DOROTHY M. EMMET. (London: Macmillan & Co. Ltd. 1932. Pp. xiv + 289. Price 8s. 6d.)

This book provides an excellent introduction to Whitehead's philosophy. It deals particularly with his *Process and Reality* and the relation of the views there developed to his earlier work. Its aim is not the futile one of supplying a substitute for reading Whitehead, but the admirable one of encouraging the timid reader to undertake the task himself.

There is little doubt that Whitehead is one of the great creative thinkers; perhaps the Socrates of our days. Though we treat him better than Socrates was treated, he does not make things easy for us, or even for himself. It is a pity that Whitehead in expounding his philosophy of organism has not always remembered that philosophy itself, if it is anything, is an organism; a "clutch at novelty," as he says of life. Why is it that Plato's Dialogues remain a perpetual source of inspiration, "a fountain of living water," while the writings of many, even of the great philosophers, are like the waters of a marsh that have to be sterilized before they are drunk, and even then have a nasty taste? It is not simply because Plato was one of the greatest of philosophers, but because, unlike other philosophers, he was also a poet, and saw the necessity of embodying the living organism of his thought in its appropriate form.

To understand a philosophy we must see how it grows. That does not mean merely a knowledge of the time sequence of the philosopher's opinions on this and that, but an insight into the causes that went to produce them and the genesis of the whole process. The logical connection of the ideas cannot be omitted, but its value is entirely negative. Just as we can avoid mistakes in adding up figures by using the laws of arithmetic, but the sum will still be wrong if the wrong figures were added up.

The more clearly a philosopher can see the genetic character of his thought and express it the more effective he will be. Where he fails the commentator has to do the work for him. In fact, it is probably difficult for the creative thinker to realize just what he is doing. He is likely to put down as much as he can and hope the reader will fill in the gaps for himself. In parts, Whitehead's expression is as near perfection as we have any right to expect, but not always, and in places there are painful gaps.

Miss Emmet has carried out her task as commentator in the right spirit. She is sympathetic without being uncritical. She evidently has no philosophical axe of her own to grind, but is genuinely anxious to understand her subject. In the early chapters of the book she lays considerable stress on the ideas expressed in *The Function of Reason.* This little book is not only a literary masterpiece, but is also one of the most revealing of Whitehead's writings. It is there he states most clearly what he thinks philosophy ought to be, and that statement is possibly even more important than his attempt to realize his ideal. At any rate nobody can understand the attempt who does not understand the ideal.

Some specially valuable points in Miss Emmet's treatment may be mentioned. She shows that in spite of superficial differences there is no essential break between Whitehead's earlier and later views. She also provides some

explanation and illustration of the "Categorical Scheme" at the beginning of *Process and Reality*: a task the author shirked. Considerable space is devoted to discussing Whitehead's theology; a difficult part of his philosophy, but an integral part and not a mere excrescence as with some philosophers.

There is only one adverse criticism that seems to be called for. In the Preface Miss Emmet makes a quite unnecessary apology, as one who is not a mathematician, for discussing a mathematical philosopher. It is a great mistake to kow-tow to the mathematicians. It simply encourages their high-priestly pose of guarding the holy mysteries. If a man is by nature a philosopher he is a better philosopher for learning a trade; but grinding lenses or reading Aristotle may be as good as mathematics. If he is by nature a tradesman, no trade can turn him into a philosopher.

A. D. Ritchie.

Books received also:—

H. G. Wells. *The Work, Wealth and Happiness of Mankind.* London: Heinemann Ltd. 1932. Pp. xiii + 850. 10s. 6d.

Nicolai Hartmann. *Ethics*, Vol. II. London: George Allen & Unwin Ltd. 1932. Pp. 476. 16s.

S. Buchanan. *Symbolic Distance.* London: Kegan Paul, Trench, Trübner & Co. 1932. Pp. 110 + xx. 2s. 6d.

C. E. M. Joad. *Philosophical Aspects of Modern Science.* London: George Allen & Unwin Ltd. 1932. Pp. 344. 10s. 6d.

J. Alexander Gunn. *Spinoza: the Maker of Lenses.* A play in three acts. London: George Allen & Unwin Ltd. 1932. Pp. 99. 3s. 6d.

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F. R. Tennant. *Philosophy of the Sciences, or the Relations between the Departments of Knowledge.* Cambridge at the University Press. 1932. Pp. ix + 191. 6s.

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Various. *Studies in the Nature of Facts.* Berkeley, U.S.A. University of California Press. 1932. Pp. 232. $3.

B. Rand, Ph.D., LL.D. *Berkeley's American Sojourn.* Cambridge, Mass.: Harvard University Press. 1931. Pp. xi + 79. $2

James Burnham and Philip Wheelwright. *Introduction to Philosophical Analysis.* New York: Henry Holt & Co. 1932. Pp. v + 462. $2.75.

E. A. Kirkpatrick, M.Ph. *The Sciences of Man in the Making* (International Library of Psychology and Philosophy.) London: Kegan Paul, Trench, Trübner & Co. 1932. Pp. xv + 396. 15s.

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CORRESPONDENCE

To the Editor of *Philosophy*

AN APPEAL

Dear Sir,

A disastrous fire, during the night before Christmas Eve, destroyed a large portion of the Library of the University of the Witwatersrand, including many Philosophical and Psychological works.

The contents of the Library were only partially covered by Insurance, and the prevailing depression makes it difficult to find the money for promptly replacing the losses.

May I, in these circumstances, appeal through the pages of *Philosophy* to all fellow Philosophers and Psychologists, and especially to my friends and colleagues at British Universities, to help me in building up again, as soon as possible, an adequate collection of books for my students.

Every gift of author's copies or of duplicates—addressed to The Librarian, University of the Witwatersrand, Johannesburg, South Africa—will be gratefully acknowledged, and the donor's name, together with the occasion of the gift, will be recorded in the books themselves.

Yours faithfully,

R. F. Alfred Hoernlé.

Head of the Department of Philosophy.

University of the Witwatersrand,
Milner Park, Johannesburg,
February 22, 1932.

To the Editor of *Philosophy*

Sir,

Mr. Rex Knight, in the current number of *Philosophy* (April 1932), questions what I say in my review of Professor Stout's *Mind and Matter*.

Professor Stout writes that "from the time of Descartes the traditional and orthodox view has been that the secondary qualities do not qualify matter at all" (p. 127). I pointed out in my review that Locke, and probably Descartes, did not use the phrase "secondary qualities" in this sense. Mr. Rex Knight admits as much.

He defends its use, however, on the ground that it is the *traditional view*, and suggests that Professor Stout in referring to the traditional view is well aware of Locke's different usage. Whether the above passage supports that interpretation must be a matter of opinion. In any case, it might be asked whether the *traditional* view is anything else than a misunderstanding of Locke's view.

Mr. Rex Knight then asks where did Descartes assert that secondary qualities qualify matter. Nothing that I said requires me to answer.

I am,

Your obedient servant,

B. M. Laing.

The University, Sheffield,
April 30, 1932.

CORRESPONDENCE

To the Editor of *Philosophy*

Dear Sir,

As a keen student of Philosophy, a staunch supporter of the Institute and its *Journal* since their inception, you may possibly allow me to express some surprise that such a very thin, inadequate review of a work so stimulating and important as *Zermatt Dialogues* should have appeared in the April issue of *Philosophy*, where one had expected to read at least a competent and thorough discussion of the basic theses and ideas put forward in that book.

Fully three-fourths of the space is given to quasi-humorous attacks on the author, apparently because of his unheard-of audacity in venturing to criticize, even respectfully, such exalted deities (worshipped by Mr. Turner of course) as Bradley and Bosanquet—the English echoes possibly improvers upon the Zeus of that Olympus—Hegel.

That even severe criticism of Hegel himself, to say nothing of his Oxford followers, is by no means "improper" seems pretty obvious from what Mr. Loevenberg says about Hegel in his review of Hegel's *Phenomenology of Mind* in the April issue of *Mind*. Hegel is here convicted of employing "many equivocal terms and phrases"; of "descending to outrageous puns to take the place of serious argument"; and, incidentally, he receives many hard knocks and stinging epithets.

Surely if Zeus himself may be thus criticized, the lesser Oxford Olympians have no good reason to complain either of the substance or the form of Mr. Fawcett's critical remarks.

But really all this is not the main point to which I wish to call attention. That point is simply and briefly a complaint that nowhere in Mr. Turner's review is *any* attempt made to discuss the fundamental, vitally important and significant issues raised in Mr. Fawcett's constructive work. All these are ignored, passed over in favour of verbal fault-finding. Nor is even the basic difference between Mr. Fawcett and Hegel brought out, viz., that while for Hegel Categories, Concepts, Conceptual types of Thought are the very essence and life of "God" or "The Idea," or The Absolute, for Mr. Fawcett Reality lies rather in the anti-conceptualist direction adopted by Schelling, Schopenhauer and others. Thus Mr. Fawcett sees no call for a "logic" giving their dialectical articulation. For according to his view "Concepts" are essentially "substitute facts," human products, with no internal moving force or life. But this fundamental position is neither discussed nor even taken seriously by the reviewer.

Above all, I regret the omission, alike in Professor Mackenzie's review in *Mind*, in Mr. Turner's in *Philosophy*, and in all the notices of *Zermatt Dialogues* which I have seen, to consider and discuss with any thoroughness the main theses and contentions of his work. In those I have seen, often laudatory and appreciative, the consideration of side issues, at best of minor importance, has crowded out and concealed the essential, fundamental issues raised. For example, I have seen no attempt anywhere seriously to discuss the case for and against belief in Divine Imagining as the Root of All. Nor have I come across any real discussion of Mr. Fawcett's contention that Time, Space and Causation are all alike creations of Divine Imagining, nor his view that when thus regarded and treated, solutions are found, and satisfying ones, for those same three perennial riddles of Philosophy.

That Mr. Fawcett's theories as to world-genesis and the like should be ignored is not surprising. After all, they are secondary products, barely within the scope of Philosophy proper, in the narrower sense. But surely anything as fresh, as penetrating, as suggestive and stimulating as his root ideas in Philosophy and his brilliant argumentative support of them, not only in these *Zermatt Dialogues*, but more technically and elaborately in his earlier works, *The World as Imagination* and *Divine Imagining*, ought to receive some less inadequate treatment and discussion in the pages of such a publication as *Philosophy*, which avowedly aims at putting before the British public the most living and penetrating philosophical thinking of the day.

Bertram Keightley.

Benares, India,
May 14, 1932.

INSTITUTE NOTES

ANNUAL MEETING

THE Seventh Ordinary General Meeting of the Institute was held at University College, Gower Street, London, W.C.1, on Wednesday, May 25th, at 8.30 p.m. A large audience was present.

A resolution for the adoption of the Annual Report and Statement of Accounts for the year ended March 31, 1932, proposed by the Chairman was carried unanimously.

The Rt. Hon. Sir Herbert Samuel then delivered his Presidential Address, which was lively, topical, and penetrating. It was highly appreciated by his audience. The address in the form of a small book has been published by Kegan Paul, Trench, Trübner and Co., Ltd., price 1s. 6d.

Colonel John Buchan occupied the chair, and after the address of the President made the following contribution:—

"I am told that I have to make some observations, and my first is that we have had a delightful evening. Our President has given us an address which was both acute, sagacious, and provocative, and he has salted it with an admirable humour. We shall not soon forget his likening of a certain type of philosopher to the plumber who gets nothing done because he is always going back for his tools and his mate.

Sir Herbert Samuel, I fancy, like myself, began his philosophical studies under the shadow of the great classical systems. I think that in his day the Hegelianism of T. A. Green and Edward Caird was in its meridian. In my own day it had begun to decline a little, and we were more attracted by the subtlety and daring of Mr. F. H. Bradley and the close texture of Mr. Bosanquet. English Hegelianism had degenerated a little into formulas, and indeed it had become almost a devotional exercise. It had forgotten Plato's advice *φιλοσοφειν ἀνευ μαλακιας*, "to be a philosopher without slushiness." There was a legend in my day that someone, I think Professor Wallace, opened a Greats philosophy paper with "Write down what you know about God, and don't mention Him in the rest of the paper." There was a dangerous charm about those facile Hegelian reconciliations. That higher unity to which we so readily had recourse—it is a habit not easy to shake off. Is the present exalted position of our President not perhaps an example of the Hegelian "agreement in difference"?

I have often heard Lord Balfour say that the sense of atmosphere was one of the most valuable endowments of a philosopher. A thinker must have an instinct for the topical, if he is to have any real influence as a teacher, and understand just the right point of impact for philosophy upon the mind of his generation. Our President has in a high degree this sense of atmosphere. The secular philosophical problems must be stated in contemporary language, and in their restatement they will take on a new character. That is the eternal cycle. Plato, Aristotle, Spinoza, Kant, Hegel, Lotze—their systems have not perished, but they are perpetually acquiring a new form. It was a famous saying of Hegel's that "the shore of the Happy Islands were strewn with the wrecks of philosophical systems." I have never thought that a very happy metaphor. The true metaphor should be rather, I think, that of some great organic growth like trees, which die down in time, but thereby enrich the soil and produce new growths of the same genus and species.

Sir Herbert Samuel, if I understand him rightly, thinks the temper of our age a little alien from the high-priori systems, and urges a more modest

approach to philosophy, largely from the direction of the sciences. That is to say, he would have us be more careful to grasp the manifold of experience before we generalize about it. But modesty can be carried too far, and it must stop short, I think, of decrying the human reason. I was very glad to hear his strictures on what seem to me the false deductions drawn from certain admitted gaps in scientific proof, especially in physics. I am a little alarmed by a kind of "defeatism" which appears in certain popular expositions. Because we have to admit the existence of elements in the universe at present unknown, is it fair to argue that these elements are exempt from causal law? Ought we to regard "unpredictable" and "unintelligible" as equivalent to "uncaused" and "undetermined"? When we are told that these gaps in our knowledge mean the admission of free will into the universe I really cannot quite follow. I am a believer in free will, but I should not like to base it on these grounds. Sir Herbert had quoted a most interesting letter from Professor Einstein on the subject, and I have heard Professor Einstein say the same thing in conversation. I welcome Sir Herbert's defence of causality. If we politicians ever became sceptical about that I do not know where our souls would find rest.

The attitude of the ordinary man to-day, whom Sir Herbert so sympathetically interprets, is inclined to opportunism, but it is a fruitful opportunism. We have heard lately in connection with certain questions the phrase "loyal unrest." In the same way we may defend the current attitude as a kind of faithful and believing suspension of judgment. It may leave many provinces of life imperfectly rationalized, but it does not exclude reason from them; it does not legislate them out of existence under a narrow logical code.

We are not living to-day in an age of philosophic pride. Lord Acton once said that the modern historian must take his meals in the kitchen, and that would seem to be the attitude of the modern philosopher. He is almost painfully anxious to link his theories to the homely facts of life. The epoch of the great system-makers is over for the moment. No one has the courage to attempt an encyclopædic philosophy. Some may set this down to an advance in common sense; but since the impulse to systematize is so strong and enduring in human nature, I think something is also due to a failure of nerve.

We live in an age of sceptical disillusionment in most domains of human activity, an age of dilapidation and disintegration; dilapidation, which is the breakdown of shape and line; disintegration, which means the dissolving of things into a nebula of atoms. Our tendency has been to reduce life to what St. Paul called the "beggarly elements." But of course we cannot be content with these "beggarly elements," for we cannot abide in chaos. In every domain of life we are coming to see that some construction is necessary. The wounds which philosophy makes, only philosophy can cure. We must devise a working faith to suit our needs, and labour to attain such truth as is permitted to us. If our conclusions do not satisfy our children then our children will revise them according to their requirements. That is the eternal law of life. We move always towards a goal which we see before us as an ultimate thing, but which to our successors may be only a ridge behind which there are higher summits. That attitude, which is what our President has expounded to us to-night, is the attitude of a wise and practical humanism. It is something which the ordinary man can understand and value, for it is both humble and hopeful."

The Provost of University College, in his usual felicitous manner, proposed the vote of thanks to the President, which was carried with enthusiasm.

* * * * *

The syllabus for next session which is now being prepared will be sent to all members in due course.

* * * * *

The Editor begs leave to remind all interested in the work of the Institute that donations of any amount, to supplement the inadequate income from subscriptions, will be greatly appreciated by the Council of the Institute.

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Those desirous of becoming members of the Institute are invited to apply for further particulars and forms of application to The Director of Studies, University Hall, 14 Gordon Square, London, W.C. 1.

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THE Institute has no endowments, and its work, which includes Lecture Courses and Study Circles in the various Centres as well as the conduct of the JOURNAL, is carried out on the most economical lines, but it cannot be expected that a liberal service be provided entirely from revenue derived from subscriptions at £1 1s. per annum.

DONATIONS, of any amount, for the current year will be greatly appreciated by the Council.

All sympathizers with the Institute's work are invited to become members.

HARTMANN PRIZES

ALTERATION OF DATE FOR RECEIVING ESSAYS

Two Prizes of £50 each have been offered by a member of the British Institute of Philosophy for the best Essays on Nicolai Hartmann's ETHICS (English Tr. published by George Allen & Unwin Ltd., London) under the following conditions:—

1. One prize to be open to men and women of British birth, wherever resident, under the age of 28; and one to men and women of American birth, wherever resident, under the age of 28.

2. The Essays shall be of not less than 100 typewritten quarto pages.

3. They must be sent in before January 1st, 1934 (not June 1st, 1933, as stated in the former announcement), addressed to the Director of Studies, The British Institute of Philosophy, University Hall, 14 Gordon Square, London, W.C.1, with addressed stamped envelope enclosed for their return to the writers.

4. The prizes shall only be assigned on condition of the attainment of a certain standard by the selected Essays.

5. The selection shall be made by the Academic Committee of the British Institute of Philosophy.

J. H. MUIRHEAD,
Chairman of
The British Institute of Philosophy.

UNIVERSITY HALL, 14 GORDON SQUARE
LONDON, W.C.1
October 1932